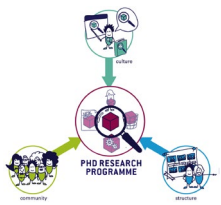

IDE Discipline Related Courses

This document gives an overview of the Discipline Related Courses offered by the faculty of IDE. Note that the courses you can take for the Discipline Related skills category of Doctoral Education are not limited to the courses in this overview.

IDE DISCIPLINE RELATED COURSES

The discipline related skills category of Doctoral Education focuses on giving you a greater breadth and depth of knowledge in the field of your doctoral research. This document gives an overview of the courses offered by the faculty of IDE.

Note that the courses you can take for the discipline related skills category of Doctoral Education are not limited to the courses in this overview. They may include summer schools and courses at other universities as well as courses and tutorials at reputable conferences.

COURSE OVERVIEW

These are the courses offered by the faculty of IDE, click on the name of the course for more information.

Mandatory IDE Research Course

The IDE Research Course aims to help you find a position within the field of design research, to learn about the research culture(s) in the IDE field, to get familiar with the wider research community at IDE, and to strengthen your peer network. The course provides an overview of the variety of research approaches in design research. The course focuses on research skills related to the work of the PhD candidates themselves, and on the research spectrum present at IDE.

We recommend to take this course during the first year of your PhD project.

- **IDE Research Course**

MSc course related PhD courses

The IDE Graduate School also offers IDE Discipline Related Courses. These courses are based on MSc courses and adjusted to serve the wishes and needs of PhD candidates. The credits for these courses count in the Discipline Related Skills category. Please contact the course coordinators in order to participate in these courses. Note that some courses can only accommodate PhD candidates if their background is suitable and if there is room in the course.

- **Data Processing and Analytics in IDE Research**
- **Research through Design (RtD)**
- **Reading seminar on Design and Socio-Cultural Theory**
- **Masterclass 'Writing a journal paper in the field of human experience'**
- **Conference and Reviewing Skills in Contextual Design (CRS)**
- **Product Experience (PE)**
- **Capita User - Product Interaction (CUPI)**
- **Evaluating Design from User - Product Interaction Theory (EDUPIT)**

Other courses

Online providers such as EdX and Udacity offer MOOCs and other online courses. The courses below were developed by members of our own faculty.

- **Delft Design Approach - EdX**
- **Circular Economy - EdX**
- **Statistics (Online Self-study Course on Brightspace)** *(please note: 0 GS credits / not part of DE)*

Data Processing and Analytics in IDE Research

Course coordinator: **Wilfred van der Vegte**
Course runs: **Q4, once per year**
Course sessions: **4 half-day sessions, each about one week apart**
Preparation and homework: **14-20 hours**
Contact/enrolment: **w.f.vandervegte@tudelft.nl**
Number of participants: **5 - 15**
Credits: **3 GS credits**

COURSE REQUIREMENTS

In order to participate in this course, you must:

- *ideally* be in your second year or first half of your third year
- have a laptop computer available on which you have rights to install software
- *ideally* have some research data that lends itself for exploration as presented in the content description. You may be able to identify such a dataset during the course.

DESCRIPTION OF THE CONTENT

From experiments, user observations, surveys, corpora of literature, etc., data can be extracted that can be analysed to reveal patterns and relationships. For researchers, these can provide insights to generate or to test hypotheses. In the context of design, the increasing connectedness and digitalisation of products and services also increases the availability of data that can provide insights to researchers in the field.
Statistics, visualizations, machine learning and text mining are powerful enablers for discovering these insights, but they can seldom work with the available data straight away. Typically, a succession of steps is needed to reorganize the data and extract relevant elements. Until recently, this composition of processing workflows, or pipelines, has been a tedious process that could best be left to specialists fluent in programming languages such as Python and R. However, today's visually oriented toolkits (e.g., RapidMiner, KNIME, Orange) can conveniently replace much of the traditional text- based coding needed for setting up complete data-processing workflows. These toolkits also facilitate communication and explanation of the deployed workflows to involved stakeholders, and produce models revealing meaningful relationships within the data. In the course we will use visual programming to explore rich datasets for insightful patterns and relations with the goal to generate actionable knowledge for IDE research. The exploration is built upon selected fundamentals of data processing and analytics based on the needs of the participants.

LEARNING OBJECTIVES

Having completed this course, you will be able to select and apply processing steps to explore rich datasets related to IDE research, and to convert opportunities for finding meaningful relationships and patterns into executable processing workflows using visually oriented analytics tools.
More specifically, you will:

1. understand the typical types of relations that can be revealed through basic statistics (mean, max, min, mode, etc.), visualization, machine learning (ML) and text mining (TM);
2. have understanding of the main differences and similarities between statistics and ML;
3. understand and apply the key preparation steps to make raw data suitable for visualization, basic stats, ML and TM - such as merging data sources, data smoothing, binning, pivoting and aggregation;
4. understand the distinction between models explaining the relations mentioned under (1) and algorithms to find the best fits for parameters in a model. Also, you can select explainable models if applicable, and interpret such models;
5. be able to apply data visualizations in an explorative fashion to help identify appropriate preparation steps.
6. be able to implement the above actions to create data-processing workflows using a visually oriented tool, and extract meaningful knowledge in a way that clearly exposes how it contributes to scientific progress or can be implemented in a design context.

TEACHING METHODS

The course follows an active-learning approach, in which a balanced composition of classroom presentations and discussions, tutorials, project-based learning, and self- study is applied.

TEACHING MATERIALS

Software: Orange datamining software for Windows, Mac OS or Linux. Free download from https://orangedatamining.com/

Other teaching materials will be proposed during the course sessions.

ASSESSMENT

You will receive your certificate based on active participation in the course, which is evidenced by taking part in classroom and online discussions and showing evidence of having gained hands-on experience in data processing and analytics.

Research through Design (RtD)

Course coordinator: **prof. dr. P.J. Stappers**
Course runs: **Q4 2023**
Course sessions: **4 half-day in-person sessions 13:45-17:30 on 17, 24, 26 May, 7 June**
Preparation and homework: **14-20 hours**
Contact/enrolment: **p.j.stappers@tudelft.nl**
Number of participants: 5-15
Credits: **3 GS Credits**

COURSE REQUIREMENTS

In order to participate in this course, you must:

- *ideally* be in your second year or first half of your third year
- use design actions as part of your research method (probably you have a design background in your master)

DESCRIPTION OF THE CONTENT

Design is young as an academic discipline, and its research methods are diverse, 'borrowing' from natural and social sciences, humanities, engineering, and design itself. Increasingly, PhD researchers with a design background attempt to make their design skills part of the method of research. This field of 'Research through Design' (RtD) confronts the PhD researcher with having to explain how design actions contribute to knowledge generation, what types of knowledge are delivered, and how to conduct these studies with dependable quality.
This course follows a review chapter [1] giving sample RtD projects, and themes in the academic literature (find it by typing 'research through design' into a plain Google search). You will read some of the key papers, and discuss how your own work relates to the themes from the literature.

LEARNING OBJECTIVES

Having completed this course, you will be better able to

1. position your own project in the RtD 'spectrum'
2. argue for the types of results (knowledge, impact) of your work
3. argue in what ways your design skills are part of the research
4. understand the position of design research in between other disciplines

TEACHING METHODS

The course consists of four meetings of half a day. In preparation you will read the chapter and some key papers, reflect on your own project, and present and discuss about these themes in sessions with peers, moderated by the course coordinator.

TEACHING MATERIALS

The backbone of the course is the chapter [1], which is available online. A printed version is also available for participants. Also some other papers of required and optional reading will be made available. These will be determined during the course on the basis of the ongoing discussions.

ASSESSMENT

You will receive your certificate based on active participation in the course, which is evidenced by taking part in classroom presentations and discussions.

Reference

1. Stappers, P. J., & Giaccardi, E. (2017*). Research through Design*. In M. Soegaard, & R. Friis-Dam (Eds.), The Encyclopedia of Human-Computer Interaction. (2nd ed., pp. 1-94). The Interaction Design Foundation. Chapter 43.

Reading seminar on Design and Socio-Cultural Theory

Course coordinator: **prof. dr. Bregje van Eekelen**
Reading group initiators: **Abhigyan Singh, Boudewijn Boon, Ehsan Baha, Peter Kun**
Course runs: **year-round, every 3-4 weeks**
Contact/registration: **dr. Abhigyan Sing, (A.Singh@tudelft.nl)**
Credits: **1 GS Credit for every two sessions attended (max. 5 GS credits)**

DESCRIPTION OF CONTENT

Aim: The purpose of the Reading Seminar is to develop an intellectual dialogue within IDE by discussing and reflecting on design and socio-cultural theories.
Approach: The Reading Seminar meets every 3-4 weeks. Participants prepare in advance by reading and reflecting on pre-announced texts for the seminar. On occasion, we will invite foreign experts (authors of the selected text)
to discuss their works with us. Each seminar lasts around one hour and forty-five minutes. Participants of the seminar can also propose a topic and texts for upcoming seminars. (Please note that the reading seminar will not consist of any lecture).
Requirement: The only requirement for participation in a Reading Seminar is to come prepared by having read and reflected upon the announced texts and to actively participate. An interest and desire to ask and engage difficult questions during the seminar will be much appreciated.

DELIVERABLES

N/A

Masterclass 'Writing a journal paper in the field of human experience'

Course coordinator: **dr. Rick Schifferstein**
Course runs: **Once every 2 years (2022, 2024, …), for 5-6 months, depending on expressed interest. Usually starting September/October**
Contact: **Before start of the course (will be announced in PhD mailing list)**
Credits: **5 GS Credits**

DESCRIPTION OF CONTENT

Writing a paper for an academic journal is an art in itself that asks for a particular style that can only be learned through extensive practice. Writing a paper can be a cumbersome and energy-draining activity: Every detail needs to be checked, every sentence needs to fit in, and the wording should be precise, the line of argumentation should be solid, statistical analyses should be appropriate and well executed, every conclusion should be substantiated by the study results. In addition, every journal seems to have their own rules, some of which are implicit. Therefore, many researchers struggle to complete their papers.

In this Masterclass, Rick Schifferstein provides a stable basic framework for writing academic papers, using the draft papers, reviewer reports, and rebuttals from his own publication practice as exemplary materials. Participants will receive a detailed insight in his personal approach to academic writing, supplemented by many practical suggestions and personal writing tips. The class helps both in speeding up the writing process and in improving the quality of the scientific contribution.

The meetings provide a 'training on the job' approach: participants evaluate and discuss each other's work and develop a writing strategy for the next part of the paper. In between meetings, participants revise their contribution and work on the subsequent section for their paper. When they keep up with the schedule and finish the entire course, they will have finished a paper that is ready for submission. The scheduled joint meetings really help to motivate participants to continue to work on their papers over the course of the meetings.

This Masterclass is intended for academic staff and experienced PhDs who are in their 2nd to 4th year who already have basic writing skills from courses on scientific writing and writing papers for conferences. The course is tailored towards participants who have finished an empirical study in the field of human experience, consumer behavior or design research, and would like to transform their outcomes into a high-quality journal paper for an academic journal (e.g., International Journal of Design, Materials & Design, Applied Ergonomics, Design Studies, Journal of Engineering Design, Journal of Design Research, CoDesign, Journal of Consumer Research).

DELIVERABLES

For every meeting (except the first one), students write a section of their paper. During the meetings, students give each other peer formative feedback on the assignment. Students who cannot attend a meeting are requested to team up with another student, in order to exchange mutual personal feedback on the writing assignment for that meeting. After the course, students hand in a full paper in which all peer comments have been addressed, and that is ready for submission in a journal. The course coordinator will determine a final grade on the basis of this paper. If sufficient, the student will get a certificate.

Conference and Reviewing Skills in Contextual Design (CRS)

Linked course: **Context & Conceptualisation (ID4216)**
Course coordinator: **prof.dr. Pieter Jan Stappers (p.j.stappers@tudelft.nl)**
Course runs: **1st period (September) until end January**
Contact the coordinator: **before September 1st**
Credits: **4 GS-Credits**

DESCRIPTION OF CONTENT

Writing and reviewing conference and journal papers are key academic skills. This course aims to teach skills related to scientific communication in the form of conferences, and the roles of an academic in peer review processes. This will also help in writing papers.
The course is organized on top of a writing exercise that runs in the MSc course ID4216 Context & Conceptualisation (C&C). The exercise is organized as a conference with circa 200 participating authors (students) choosing a topic from a series of calls, and developing a proposal and a paper. The role of the participating PhD students is to take the role of 'editor', hosting a content track on a topic related to design research (and their own interests).
Before you take part in this course, you should have gone through a writing and peer review process yourself (e.g., you first conference or journal paper).

DELIVERABLES

The course runs in the Fall semester. Deliverables include writing a call for papers (one meeting in October), giving feedback to a proposal (one meeting in November), and three days review work in January.

Product Experience (PE)

Linked course: **Advanced Embodiment Design (ID4175)**
Course coordinator: **dr. Haian Xue (h.xue@tudelft.nl)**
Course runs: **3rd/4th period (starts February)**
Contact the coordinator: **as soon as possible**
Credits: **3 GS-Credits**

DESCRIPTION OF CONTENT

Designing for experience requires three basic design skills: 1) understanding the fundamental differences among different types of product experiences (i.e., design for aesthetics, meaning, and emotions); 2) identifying the level of human-product interactions for facilitating a specific experience (i.e., micro, macro, and metal levels); and 3) figuring out which product property is the best carrier for the desired human-product interaction (i.e., shape/ sound/materials; product function; context of use and interaction).

By following this module, PhD candidates will gain both theoretical and practical skills into developing product experiences. By the end of the course, with the help of a 'product experience matrix', PhD students will be able to analyze the properties of a current product and conceptualize a future interaction scenario for eliciting a desired experience.

The content of the exercise depends on a PhD candidate's interest in a particular product experience.

DELIVERABLES

- One essay
- Two Product Experience Matrices

The course runs in the first block of Spring semester (Q3). An essay on current and future product experiences is required together with two Product Experience Matrices (one for current and one for future product experiences). PhD candidates will participate in three product experience workshops (aesthetics, meaning, and emotion) through which they can also test their drawing or building skills. Feedback is given by experts at the workshops and/or through one-on-one scheduled meetings.

Capita User - Product Interaction (CUPI)

Linked course: **Product Understanding, Use, and Experience (ID4210)**
Course coordinator: **prof.dr. Paul Hekkert (p.p.m.hekkert@tudelft.nl)**
Course runs: **1st period (September) until end January**
Contact the coordinator: **before September 1st**
Credits: **2 GS-Credits**

DESCRIPTION OF CONTENT

The course aims at teaching students state-of-the-art knowledge on human-product interaction, in particular on how products are cognitively understood, used and experienced through all our senses. The course thus relies heavily on insights from the behavioural sciences as far as these help us to understand our relationship with and responses to designed artefacts, services, and product-service systems. The course is organized on top of the MSc course ID4210 Product Understanding, Use, and Experience (PUUE), in which students take part in a series of 12 2-hour lectures on design-related topics from the disciplines mentioned above, and followed by an assignment in which the student applies the theory to a design topic.

DELIVERABLES

PhD candidates attend in 3 PUUE lectures and hand in the connected assignment.

Evaluating Design from User - Product Interaction Theory (EDUPIT)

Linked course: **Product Understanding, Use, and Experience (ID4210)**
Course coordinator: **prof.dr. Paul Hekkert (p.p.m.hekkert@tudelft.nl)**
Course runs: **1st period (September) until end January**
Contact the coordinator: **before September 1st**
Credits: **3 GS-Credits**

DESCRIPTION OF CONTENT

Understanding User-Product Interaction builds on several scientific disciplines, such as perception, cognition, emotion, human factors.
The course is organized on top of the MSc course ID4210 Product Understanding, Use, and Experience (PUUE), in which students take part in a series of 12 2-hour lectures on design-related topics from the disciplines mentioned above, and followed by an assignment in which the student applies the theory to a design topic.

DELIVERABLES

PhD candidates in this course develop an assignment that goes with one of the lectures. Next to the assignment, the PhD candidate makes a 1-page reflection, which is evaluated by the lecturer of the topic.

Statistics (Online Self-study Course on Brightspace)

Course coordinator: **dr.ir. Ruth Mugge (r.mugge@tudelft.nl)**
Please contact Manon Borgstijn (M.M.Borgstijn@tudelft.nl) for access
Credits: **0 GS Credits / not part of DE**

DESCRIPTION OF CONTENT

Having a basic understanding of statistics is important for PhD candidates because this enables them to correctly interpret scientific articles that report on quantitative research in the field of design. Furthermore, it can help them with successfully setting up their own quantitative research.
Statistics is an independent, online learning course on Brightspace which offers PhD candidates the possibility to study the most basic statistical analyses themselves on their own pace. The course is developed for an IDE audience and provides many research examples with a design focus.
Specifically, within the Brightspace environment the theory of different statistical analyses (e.g., descriptives, correlation, regression, t-test, chi-square test, ANOVA) is discussed. After studying the theory, PhD candidates can watch YouTube videos about these analyses and complete practical exercises in the software program SPSS to practice with conducting the different statistical analyses and interpreting the findings.

DELIVERABLES

As the course is intended to be a self-study course, PhD candidates can work on the course on their own pace during the whole year. However, assessment will only take place once a year at the end of quarter 1. This assessment will be a computer exam in which the PhD candidates are asked to analyse and interpret the findings of various research problems in SPSS.