Workshop schedule

The Methods Center at the University of Tübingen cordially invites PhD candidates, postdoctoral researchers, and professors to join our first Fall School.

We plan a face-to-face gathering. If, contrary to expectations, the pandemic should make it necessary, we would change the event to an online format at short notice and inform all registrants in a timely manner. For travel, please make sure to either book at short notice or secure cancellation options. In any case, we look forward to meeting you.

Location: Neue Aula, Universität Tübingen
(Geschwister-Scholl-Platz)

The presented program is only an orientation. The specific timetable depends on the workshop and is given at a later time.

Thursday, October 6

08:30 - 09:30	Registration and coffee
09:00 - 12:00	Parallel workshops (including coffee breaks)
12:00 - 13:15	Lunch (included in fee)
13:15 - 17:00	Continuation of parallel workshops
from 19:00	Dinner (separate registration; at own expense)

Friday, October 7

09:00 – 12:00	Parallel workshops (including breaks)
12:00 – 13:15	Lunch break (included in fee)
13:15 – 17:00	Parallel workshops (including breaks)

You can find further information on our website (see QR code at the back of the flyer).

R f e Fall School is organized by

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EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

Fall School Interdisciplinary Methods

October 6 and 7, 2022
Methods Center
University of Tübingen

EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN
Methodenzentrum

Aims and Scope

The Fall School is aimed at PhD candidates, postdoctoral researchers, and professors who are looking to deepen their knowledge in machine learning, psychometrics, econometrics, or mixed methods. During breaks, lunch, and dinner the interdisciplinary topics can discussed to further the connection between those - while different - close research areas.

Parallel workshops (German or English)

WS 1: Foundations of Deep Learning for the Social Sciences (in English)
Christopher Urban
Deep learning (DL) has revolutionized how complex processes are modeled in fields including computer vision, natural language processing, computational biology, weather forecasting, and game playing, but is rarely used to model complex behavioral processes in the social sciences. In this workshop, I will provide a thorough overview of the potential benefits and practical considerations related to applying DL to behavioral data. We will begin with an introduction to neural networks (NNs), covering fundamental concepts such as automatic differentiation and stochastic gradient-based optimization. Next, we will cover important NNs including convolutional NNs for modeling image data as well as recurrent NNs and Transformers for modeling sequential data. We will conclude with connections between DL and latent variable modeling, focusing on how DL tools can be used to enhance the flexibility and computational efficiency of the structural equation and item response theory models commonly used in the social and behavioral sciences. Each topic will be accompanied by worked examples in R and/or Python.

WS 2: Psychological Constructs as Continuous Time Dynamic Systems (in English)
Charles Driver
Viewing psychological constructs as interrelated dynamic systems is at once highly intuitive at the conceptual level, yet instantiating formal statistical models of observed data for such systems is fraught with difficulties -- some obvious and some less obvious. In this workshop I will discuss conceptualizations of change and individual differences in psychological systems, from linear growth to complex multivariate stochastic processes and input effects. The workshop has two main goals -- the first is to simply learn to think a little more deeply about how psychological processes may behave and interact over time, independent of any statistical model or data. The second goal is to begin to formalise some of these ideas as statistical models. To pursue the first goal we will use discussion, drawing, and simulation in R, and for the second we move on to modelling approaches including regression, SEM, and continuous time state space modelling via ctsem. The general perspective throughout will revolve around representing dynamic systems as (hierarchical) stochastic differential equations (i.e. continuous time) with some form of measurement model, though the intention is to focus on an intuitive and pragmatic understanding rather than any of the complex mathematics.

WS 3: Mixed Methods (in German)
Stefan Rädiker
In diesem Workshop durchlaufen wir wichtige Schritte, die es bei der Planung und Durchführung einer typischen Mixed-Methods-Studie zu beachten gilt: Wir starten bei der Bedeutung und Formulierung von Fragestellungen, besprechen Aspekte des Samplings sowie verschiedene Designs und widmen uns anschließend intensiv der sequenzbasierten, datenbasierten und resultatbasierten Integration. Anhand eines Beispiels mit Übungen behandeln wir konkrete Fragen und Probleme in den einzelnen Schritten.

Die Teilnehmenden haben die Möglichkeit, vorab Fragen zum Thema einzubringen, die sie gerne im Workshop behandeln möchten.

How to apply

If you are interested in joining our Fall School, please write an email to office@mz.uni-tuebingen.de attaching the filled out registration form, which you can find on our website (see the QR code on the back of the flyer).

The application deadline is September 4, 2022. Please be aware that we fill the spots (20 per workshop) in the workshops in the order of the registration.

Fee

Fee (for catering in breaks and lunch; dinner is at own expense)**:** 60 €