The courses may take place in parts or as a whole online (virtual conferences) if in-classroom teaching is not possible.

Deadline for registration is December 20, 2021.

The fee for the course is € 645; discounted rate for affiliated with a university € 430.

The cancellation policy is as follows: 100% refund for cancellations till December 29; 75% refund for cancellations between December 30 and January 5; no refund for cancellations after January 6, 2022.

Attendee substitutes may be made at any time.
Aims
Course participants will be able to:

- Understand the basic ideas behind generalized additive models and related approaches
- Perform their own analyses using the statistical language R
- Visualize and interpret the results

Pre-requisites
The participants must have

- Basic knowledge of statistics and probability theory, including the classical linear model
- Basic knowledge in R

Schedule (subject to change)
Thursday (13th of January)
9:00 – 10:30 Introduction
11:00 – 12:30 Exercises
13:30 – 15:00 Smoothing and Penalties
15:30 – 17:00 Exercises

Friday (14th of January)
9:00 – 10:30 Generalized Additive Models
11:00 – 12:30 Exercises
13:30 – 15:00 Statistical Inference in GAMs
15:30 – 17:00 Exercises

Saturday (15th of January)
9:00 – 10:30 Alternatives to GAMs
11:00 – 12:30 Exercises

Course content
The course discusses modelling approaches that go beyond the well-known (generalized) linear model, e.g., because crucial assumptions such as linearity in the covariates are violated. In particular, the following topics will be covered:

- Polynomial functions of covariates
- Modeling using splines
- Smoothing and penalties
- Semi- and non-parametric modeling of covariates
- Statistical inference
- Implementation in R
- Generalized additive models in practice

Number of Participants
The number of participants is limited to 25 per course.

Pre-requisite
Knowledge of mathematical principles including basic knowledge of probability theory.

Basic knowledge of the statistical programming software R is needed.

Course instructor
Prof. Dr. Jan Gertheiss,
Helmut Schmidt Universität/Universität der Bundeswehr Hamburg