

## Introduction to Target Trial Emulation

Faculty of Medicine Postgraduate Education Unit (PGE) organizes a two-day course in the Autumn term, 2026. All doctoral candidates at the Faculty of Medicine are welcome to attend the course. The number of participants is limited to 40 people.

**Course leader:** Biostatistician Eliisa Löyttyniemi, University of Turku,

**Teachers:** Emeritus professor Esa Läärä, University of Oulu ([esa.laara@oulu.fi](mailto:esa.laara@oulu.fi)),

Biostatistician Terhi Kolari, University of Turku ([terhi.kolari@utu.fi](mailto:terhi.kolari@utu.fi))

**Credits: 1 ECTS**, 11 h of lectures and practicals

**Learning outcomes:** After successful completion of the course, the student is able to describe the basic principles of target trial emulation, the relevant estimands (intention-to-treat and per-protocol effects) describing interesting causal effects on medical and public health interventions, and the major biases to be avoided in observational studies when aiming to obtain unbiased results on the estimands. In addition, the student has gained basic proficiency in using the tools available in the R environment for analyzing data from a target trial emulation.

**Prerequisites:** Basic knowledge in statistical methods as well as some experience in statistical modelling (like logistic and Cox regression) and the use of the R environment.

**Requirements:** Active participation in lectures, and practical sessions. Participants are given selected articles for pre-reading and homework.

**Evaluation:** Pass/Fail

**Registration** in Peppi **by xxx**.

## **Programme**

**Thursday 26.11.2026 -- Place: Dent1, Dentalia**

**09.00-10.30 Lecture I (1.5 x 45 min, including 15 min break): Motivation for target trial emulation. Interesting causal estimands in randomized controlled trials. Common biases in observational studies, and how to avoid them in TTE.**

**10.30-10.50 Break**

**10.50-12.10 Practical session I (2 x 45 min): Critical review of published articles; a conventional observational study and a TTE.**

**12.10-13.10 Lunch (not free)**

**13.10-14.55 Lecture II (2 x 45 min, including 15 min break): Principles of statistical analysis of data in a TTE; modelling the outcome, censoring and adherence, and the application of inverse probability weighting (IPW) .**

**Friday 27.11.2026 -- Place: Dent1, Dentalia**

**09.00-10.30 Practical session II (2 x 45 min): Computer practical – analysing TTE data in the R environment.**

**10.30-10.50 Break**

**10.50-12.10 Lecture III (1,5 x 45 min, including 10 min break): Further issues in the analysis of TTE data.**

**12.10-13.10 Lunch (not free)**

**13.10-14.30 Practical session III (1,5 x 45 min): Continuing computer practical in R**

**14.40-15.00 Lecture IV (0.5 x 45 min): Concluding remarks**