

Semiparametric Models, Winter 2020 (097470)

Syllabus

Teacher: Yair Goldberg

Email: yairgo@technion.ac.il

The course will be given in Hebrew.

Class: Wendensday 10:30- 12:20

- **Goals:**

The course's main goals are to present the theory of semiparametric models and to apply this theory to solve statistical problems. The first part of the course deals with the definition of semiparametric models and the theoretical development for estimators of the parameters in these models. The second part of the course will be focused on the use of semiparmatric tools for missing-data problems.

- **Topics:**

1. Semiparmetric models: Examples and Definitions
2. The Influence and the Score Functions
3. Estimation in Sermiparametric Models
4. Case Studies: Restricted Moments Models and the Cox Model
5. Missing Data Models
6. Inverse Probability Weighted Estimators for Missing Data

- **Prerequisite:**

Knowledge in Probability and Statistical Inference is assumed.

- **Homework:**

There will be homework assignments.

The final grade will be based on homework (20% of the grade) and home exam (80% of the grade).

- **Literature:**

Course Book:

A. Tsiatis. *Semiparametric Theory and Missing Data*. Springer, 2006.

Other relevant books:

1. A. W. van der Vaart. *Asymptotic Statistics*. Cambridge University Press, 1998.
2. P. J. Bickel, C. A.J. Klaassen, Y. Ritov and J. A. Wellner. *Efficient and Adaptive Estimation for Semiparametric Models*. Springer, 1998.