

# Statistical methods in medicine and epidemiology, fall 2011

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### News

The last lecture is on Tuesday (December 13). We start in the computer class at 3:15 p.m. (see an extra R exercise below; we will do this partly). After the computer class, a wrap-up session in B120.

[Survival regression in R](#)

The second course exam will be on Thursday, December 15. We will start at 4 p.m. sharp. The exam ends at 7 p.m. The exam will cover the 2nd part of the course (see below for a detailed list of topics).

### Lecturer

[Kari Auranen](#)

### Scope

6-10 cu.

### Type

Advanced studies

### Prerequisites

### Lecture summaries

1. [The binary model. Conditional probability. Bayes formula.](#) (Chapters 1 and 2)
2. [Likelihood function](#) (Chapter 3)
3. [Estimation of survival. The hazard function.](#) (Chapters 4 and 5)
4. [Time. Competing risks. Censoring.](#) (Chapters 6 and 7)
5. [Approximating likelihoods. Statistical paradigms.](#) (Chapters 8, 9 and 10)
6. [P values](#) (Chapter 11)
7. [P values continued](#)
8. [Estimation of relative rates](#) (Chapter 13)
9. [Confounding. Stratification. Standardisation](#) (Chapter 14 and 15)
10. The lecture on confounding continued.
11. [Case-control studies](#) (Chapter 16)
12. Lecture. The lecture on case-control studies continued.
13. [Matching](#)
14. [Part I: Poisson regression](#)
14. [Part II: Logistic regression](#)
15. [Samplesize](#)
16. [Hypothesis testing. Interaction](#)
17. [Model choice](#)
18. [Cox regression](#)
19. [Two articles on p values and statistical evidence](#)  
<http://www.rni.helsinki.fi/~kja/epid11/article2.pdf>

[Errata](#)

### Exercises

## 1. Exercise

[Data file \(atresia.dat\)](#) The data matrix has 4 columns: individual ID, age at diagnosis, age at death or censoring, failure indicator (1=death/0=censoring)

## 2. Exercise

## 3. Exercise

## 4. Exercise

## 5. Exercise

## 6.Exercise

## 7. Exercise (R practical)

## 8. Exercise

## 9. Exercise (R practical)

[Answers to Exercise 1](#)

[Answers to Exercise 2](#)

[Answers to exercise 3](#)

[Answers to exercise 4](#)

[Answers to exercise 5](#)

[Answers to exercise 6](#)

[Answers to exercise 8](#)

## Datasets

[CHD.dat](#)

[BCG.dat](#)

[BCGcasecontrol.dat](#)

[BCGmatched.dat](#)

[doseresponse.dat](#)

## Exams

The first course exam is on October 18 (Tuesday) at 4-7 p.m. Please note the date which has changed from Thursday (Oct 20) to Tuesday (Oct 18).

The second course exam is on December 15 (Thursday) at 4-7 p.m. The exam covers lectures 12-19, exercise 6-9 and the following chapters from the textbook:

Chapters 16, 17, 18 (except 18.2), 19, 21, 22, 23 (except 23.4),24, 25, 26,29, 30.

## Bibliography

## Registration

Did you forget to register? [What to do.](#)

## Exercise groups

Group	Day	Time	Place	Instructor
1.				