

ECON4130: Statistics 2, fall term 2006

NB! Plan for Rice edition 3 !!

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(and Harald Goldstein)

See the course webpage for times and venues for lectures, seminars and computer instruction.

Discussions are encouraged in the class, both during lectures, where emphasis is on theory, and in the seminar where exercises, applications and problems are in focus. Do exercises as much as possible. The learning through exercises is essential for this course. The exam is an open book exam with more weight on understanding than mere reproduction, and, therefore, requires a skill level which is hard to achieve without proper exercise training.

There will be 3 compulsory papers to be handed in which constitutes the portfolio ("mappe") evaluation. Normally all three papers must be submitted and approved in order to obtain an approved ("godkjent") portfolio assessment – which is necessary to be permitted to write the written exam. Students who have obtained an approved portfolio assessment earlier (2003-04-05) for this course, are not permitted to submit again.

The main focus of the course is theoretical but some computing will be required. Computing will be done in STATA. An introduction to STATA will be arranged in week 37 (and 38 if needed). The students will be divided (during the lecture week 36) into two groups for the computer training. The instruction will be in terms of a tutorial that should be downloaded from the course web page and printed before coming to the pc-room. The students will work on the tutorial by themselves, but the lecturer will be present to help out if someone gets stuck.

The computer groups for week 37 are:

Group I: Monday, 12.15 – 14, PC-room 035 in Harriet Holter

Group II: Tuesday, 10.15 – 12, PC-room 035 in Harriet Holter

A tentative plan for the course follows below. It may be subject to revisions and updating during the term. A more detailed reading list of examples and paragraphs in the book that can be skipped, will be given shortly. For some of the topics in the table below the

textbook is too thin and supplementary material will be supplied on the course web page when needed.

Tentative Lecture/Seminar Plan

(May be subject to modifications during the course)

Textbook: J.A. Rice edition 3, “Mathematical Statistics and Data Analysis”

Week	Book sections In Rice	Topics	Seminar
34 Aug	2.2 and	Review, discrete/continuous pdf, cdf Uniform, normal, exponential distribution, poisson events.	
35	2.2, 2.3	Gamma distribution, inverse functions, transformed random variables (rv's), simulation of continuous rv's.	
36 Sept.	3.3, 3.4, 4.1, 4.2	Expectation, variance for continuous distr., multiple integrals, joint and marginal distributions, independence Written paper I announced on Monday 4/9	Chap 2: 33, 34, 41, 44, 49a-c, 54, 67
37	3.6.1, 3.5, 4.4 (4.3 read yourself)	(Covariance, correlation in 4.3 read yourself) Conditional distributions and conditional expectations, convolution (in 3.6.1) Written paper I handed in Monday 11/9. (Eksp.kontoret 12th floor)	Supplementary Exercises 1- 3 (on the net)
38	4.4, 4.5	Joint and conditional normality, prediction, moment generating functions (mgf).	Chap 3: 1, 10, 18, 43 Exam 2005H postponed: Problem 1
39	4.2 (Theorem C), 4.6, chap. 5 + Lecture notes to Rice chapter 5	Taylor approximation, limit theorems, Tsjebyseff's inequality, weak law of large numbers	Chap 3: 8 Chap 4: 54, 57, 63, 66, 68
40 Oct	-----	NO TEACHING	NO SEMINARS
41	(Read 8.1-8.3 yourself) 8.4, 8.5	Slutsky's lemma. Estimation: Moment method (MME), and maximum likelihood method (MLE) Written paper II announced on Monday 9/10	To be announced
42	8.5, 8.6, 8.8	More on MLE, Efficiency, Cramer-Rao bounds, Fisher information, parametric bootstrap	To be announced
43	Lecture notes to Rice chapter 8	Random matrices, Multivariate normal distribution, asymptotic covariance matrix for MLE estimators (multi parameter case) <ul style="list-style-type: none">Written paper II handed in Monday 23/10 (Eksp.kontoret 12th floor)	To be announced.
44 Nov	“Lecture notes to	Multiparameter case continued.	To be announced

	Rice chapter 8” Rice 3.3, 8.2	Multinomial models. <ul style="list-style-type: none"> • Written paper III announced on Monday 30/10 	
45	Rice 9.4, 9.5 (Read 9.1, 9.3 yourself)	Likelihood ratio testing <ul style="list-style-type: none"> • Written paper III handed in Monday 6/11 (Eksp.kontoret 12th floor) 	To be announced
46	“Lecture Note on Logistic Regression”	Logistic regression	To be announced
47		Open	To be announced