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# **MEDDELELSER**

Dansk Selskab for Teoretisk Statistik

# Todagesmøde - Københavns Universitet Tirsdag den 7. november 13.30-14.00 Ankomst og kaffe 14.00-14.05 Velkomst 14.05-14.50 Yuri Goegebeur, Forskningsenheden for Statistik, SDU. Goodness-of-fit testing and Pareto-tail estimation 15.00-15.45 Susanne Ditlevsen, Biostatistisk Afdeling, KU. Stochastic differential equation models in physiology 15.45-16.15 Kaffe & kage 16.15-17.15 Jeff Steif, Dept. Math., Chalmers University of Technology. An overview of a part of Wendelin Werner's work 17.25-18.10 Anders Stockmarr, Dansk Fødevareforskning. Age-dependent windows for cohort culling BSE herds 18.10-18.50 Postersession og forfriskning Middag på Kroghs Køkken, August Krogh Instituttet 19.00-Onsdag den 8. november 9.00-9.45 Jakob G. Rasmussen, Institut for Matematiske Fag. AAU. Multivariate point processes observed at sparsely distributed times 9.55-10.40 Murat Kulahci, Informatik og Matematisk Modellering, DTU. Using Statistics in Quality Engineering Applications 10.40-11.00 Kaffe & kage 11.00-11.45 Martin Jacobsen, Afd. f. Anvendt Matematik og Statistik, KU. The time to ruin for processes with jumps: Exact results and numerical calculations 11.55-12.40 Vanessa Didelez, University College London. Causal inference with Mendellan randomisation 12.40 Sandwich

31. årgang nr. 8 November 2006

# Selskabets bestyrelse:

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# Selskabets www-adresse: Http://www.dsts.dk

Generiske e-mail-adresser i selskabet:

Formand: find, formand, chair, chairman Kasserer: kass, kasserer, treas, treasurer Redaktor: red, redaktoer, edit, editor Sekretær: sekr, sekretær, secr, secretæry

Webmaster: web, webmaster, www

Meddelelser: medd, meddelelser, newsl, newsletter

Bestyrelsen: best, bestyr, bestyrelse, board

Medlinfo et nedlagt!

http://www.dsts.dk/da/ skal benyttes til indmeldelse og adresseændring i DSTS.

# Todagesmøde 7.-8. november

Sted: HCØ, Københavns Universitet, Auditorium 4.

13.30-14.00 Ankomst og kaffe

Eftertilmelding: Ernst Hansen, erhansen@math.ku.dk, hurtigst muligt.

Deltagergebyr: 450 kr. for voksne (inklusive ph.d.-studerende), 225 kr. for studerende. Betaling skal ske til DSTS's konto i Jyske Bank, reg. nr. 7853, kontonr. 1117188, med tydelig angivelse af hvilke personer betalingen vedrører.

Information: Se hjemmesiden www.stat.ku.dk/dsts eller kontakt Niels Richard Hansen (richard@math.ku.dk).

## Program:

## Tirsdag den 7. november.

	14.00-14.05	Velkomst		
	14.05-14.50	Yuri Goegebeur, Forskningsenheden for Statistik, SDU.		
		Goodness-of-fit testing and Pareto-tail estimation.		
	15.00-15.45	Susanne Ditlevsen, Biostatistisk Afdeling, KU.		
		Stochastic differential equation models in physiology.		
	15.45 - 16.15	Kaffe & kage		
	16.15-17.15	Jeff Steif, Dept. Math., Chalmers University of Technology.		
		An overview of a part of Wendelin Werner's work.		
	17.25-18.10	Anders Stockmarr, Dansk Fødevareforskning.		
		Age-dependent windows for cohort culling BSE herds.		
	18.10-18.50	Postersession og forfriskning.		
	19.00-	Middag på Kroghs Køkken, August Krogh Instituttet,		
		Universitetsparken 13, http://www.kroghskoekken.dk.		
Onsdag den 8. november.				
		4 4		
	9.00-9.45	Jakob G. Rasmussen, Institut for Matematiske Fag, AAU.		
		Multivariate point processes observed at sparsely distributed times.		
	9.55-10.40	Murat Kulahci, Informatik og Matematisk Modellering, DTU.		
		Using Statistics in Quality Engineering Applications.		
	10.40-11.00	Kaffe & kage		
	11.00-11.45	Martin Jacobsen, Afd. for Anvendt Matematik og Statistik, KU.		
		The time to ruin for processes with jumps:		
	11 55 10 40	Exact results and numerical calculations.		
	11.55-12.40	Vanessa Didelez, University College London.		
	10.40	Causal inference with Mendelian randomisation.		
	12.40	Sandwich.		

#### Abstracts:

## Yuri Goegebeur

Goodness-of-fit testing and Pareto-tail estimation.

In this contribution I will discuss a general kernel goodness-of-fit test statistic for assessing whether a sample is consistent with the Pareto-type model. The derivation of the class of statistics is based on the close link between the strict Pareto and the exponential distribution and puts some of the available goodness of-fit procedures for the latter in a broader perspective. The limiting distribution for this general kernel statistic is derived under mild regularity conditions and two important special cases, corresponding to the Lewis and Jackson kernel function, will be investigated in greater depth. This approach to goodness-of-fit testing has the advantage that second order conditions on the tail behavior can be easily incorporated, resulting in bias-corrected statistics. The procedure is also computationally simple. The relation between Pareto-type goodness-of-fit testing and the optimal selection of the number of extreme order statistics for tail estimation, for instance using Hill's estimator, is examined. In this respect, we developed an algorithm based on the Lewis test statistic and compared its performance with some recently proposed procedures using a small sample simulation study. The methodology is illustrated with two practical studies.

Joint work with Jan Beirlant (K.U.Leuven) and Tertius de Wet (University of Stellenbosch).

#### Susanne Ditlevsen

Stochastic differential equation models in physiology.

There is an increasing need to extend mathematical models of biological systems to models capable of describing more complex variations in the dynamics. In general, stochastic effects influence the dynamics, and may enhance or diminish or even completely change the dynamic behavior of the system. Real biological systems will always be subject to influences that are not fully understood or that cannot be explicitly modelled, and random noise offers a tractable way of taking account of these mechanisms, especially when the variations work on a faster time scale than the variables of main interest. A natural extension of a deterministic differential equations model in continuous time is given by a stochastic differential equations model, where relevant parameters are modelled as random processes of some suitable form. This approach assumes that some degree of noise is present in the dynamics of the process. Moreover, the approach offers a description not only of the mean of physiological relevant parameters, but also the variation over time can be described and hopefully better understood. Applications from the glucose-insulin system and the hemo- and hydrodynamics of the kidney will be presented.

### Jeff Steif

An overview of a part of Wendelin Werner's work

I will give an overview of a part of Werner's work for which he was awarded the Fields medal. Of course, I will give background and attempt to put things in perspective in terms of how this work is related to more familiar notions in probability theory. More specifically, I will explain (1) percolation, (2) the concept of a scaling limit (analogous to how random walk converges to Brownian motion) for discrete statistical mechanical systems, (3) so-called critical exponents, (4) so-called intersection exponents for 2 dimensional Brownian motion and what was Werner's contributions to these topics. A common thread/tool for all of this is the stochastic lowner evolution invented by Oded Schramm which I will only very briefly touch on. Almost all of the work I will discuss is work that Werner did together with Greg Lawler and Oded Schramm.

### Anders Stockmarr

Age-dependent windows for cohort culling BSE herds.

If a BSE case is found in a herd, the practise in Denmark prior to 2005 has been to cull the whole herd to avoid the risk of further BSE cases arising. However, a growing dissatisfaction with this policy due to the loss of values and animal welfare has led to a desire to be able to cull a minor fraction of a BSE herd only, while still removing the overall part of the risk. One proposed method has been cohort culling: All animals with an age of  $\pm x$  years compared to age of the infected cow

are culled, assuming that the BSE case and all other potential cases were infected at roughly the same time. This method works well for BSE cases with an age of 6 years or less, but for older BSE cases the notion is completely inadequate, because the knowledge of when the infection is likely to have taken place declines rapidly with age, making age-dependent windows a necessity. A case study with a 9 year old infected cow will be presented.

### Jakob Gulddahl Rasmussen

Multivariate point processes observed at sparsely distributed times.

In this talk, I will model a data set consisting of annual observations of red pine trees in a plantation in Wisconsin, USA. Each year every tree has been inspected for beetle attacks by two different species of beetles, and furthermore the state of the tree (dead or alive) has been recorded. I will focus on modelling the times and positions of attacks of one of the species of beetles using a Bayesian model, and use this model for inference.

There are two approaches to modelling such a data set, a discrete time approach and a continuous time approach. The discrete time approach is to specify a model on the annual observation times, using a space-time version of the autologistic model. The continuous time approach is to use a multivariate point process, which reflects the fact that beetles may attack a tree at any time. In this talk, I will use the continuous time process; however, having only observed the data at discrete times, we have a missing data problem when we use such a process, and thus it would seem that this approach is more difficult than the discrete time approach. On the other hand, once the problem of missing data is solved, there is much to gain from using a multivariate point process. For example, unlike the autologistic model, it does not have any unknown normalizing constants in the likelihood function. In the talk I will discuss various statistical and computational advantages and disadvantages of the two modelling approaches.

#### Murat Kulahci.

Using statistics in quality engineering applications

With popular quality management movements such as Six Sigma that extensively emphasizes the use of statistical methods to improve quality and productivity, there are indeed new opportunities for industrial statisticians to help put quality into products at the design stage, and to improve and monitor processes. Parallel to these developments are the recent proliferation of computers, automatic sensor technology, communications networks and sophisticated software packages. This has in turn resulted in a great many new possibilities of applications of statistical techniques in improving quality and productivity. In this presentation, we will explore some of the challenges and approaches in today's applications in design of experiments (DoE) and statistical process control (SPC) efforts. In DoE, the emphasis will be given to situations where there are some restrictions on randomization resulting in split plot experiments. It can be argued that this is the norm and not the exception that due to some physical and/or economical constraints, experiments can actually not be run in a randomized manner as it is normally suggested. A recent surge of applications in the literature in terms of methods of designing and analyzing such experiments is a good indication for the need for such methods in real life applications. As for SPC, some of the issues involving standard methods such as Hotelling's T2 charts when data are both cross- and autocorrelated will be discussed. As we have now a greater ability to collect and store more data, the quality characteristics of interest are often numerous. Moreover typically this type of data will be not only cross correlated but also autocorrelated especially if sampled quickly relative to the dynamics of the system being monitored. These represent many challenges for the practitioners as most standard techniques assume independence. Simple yet effective methodologies to overcome this problem are certainly needed.

#### Martin Jacobsen

The time to ruin for processes with jumps: Exact results and numerical calculations

One of the truly classical problems in stochastic process theory concerns the study of e.g. the time when a process crosses below a given level for the first time. Only few examples are known where it is possible to give closed form analytic expressions for the distribution of such an exit time, in particular if the crossing can occur through a jump there are hardly any examples at all: this is the socalled undershoot problem.

It has recently become clear that there are a host of models with jumps where it is possible in fact to obtain 'semi-explicit' expressions, not only for e.g. the Laplace transform of the exit time itself, but for the joint transform of both the time and the undershoot.

Some examples will be given of the type of models that can now be analysed and the general methodology will also be presented: martingale techniques (standard) with a twist! What is meant by 'semi-explicit' will also be explained but it at least implies that it is possible to calculate Laplace transforms numerically from exact formulas.

#### Vanessa Didelez

Causal inference with Mendelian randomisation

Causal inference is about investigating the effect of interventions in a given system. It will be shown how this can be given a mathematical formulation in terms of conditional probabilities, where we condition either on observing X=x or on intervening to set X=x. The use of such a formal causal framework will be illustrated with applications from epidemiology, where in many cases one is interested in the causal effect of a modifiable risk factor in order to prevent disease. Public health interventions like banning certain toxic substances or adding folic acid to flour are examples for interventions. However, epidemiological studies are typically observational and one has to worry about problems of confounding. If control for confounding is not possible, an alternative is to use instrumental variables (IV), a well known method in econometrics. If, in an epidemiological setting, the risk factor of interest is a modifiable phenotype this instrument could be an associated genotype. The genotype of an individual is allocated at random, given the parent's genes, a phenomenon known under the name of Mendelian Randomisation. Due to this random allocation one can often assume that the properties defining an IV are satisfied for the genotype. The potentials and limits of methods based on exploiting Mendelian Randomisation for causal inference will be illustrated and discussed.

# Danish Graduate School of Biostatistics Ph.D. course

Title: Epidemiology for Biostatisticians.

**Aim:** The purpose of the course is to present a concise statistical exposition of epidemiological concepts and methodologies.

Contents: Introduction to basic concepts and methods in epidemiology. Survival analysis: competing risks, summary calculations, regressions models. Incidence, prevalence and duration, the Lexis diagram, and age-period cohort models. Confounding, graphical models in epidemiology. Measurement errors and multiple responses via structural equation models. Case-cohort, nested case-control designs, several time scales. Event history analysis models obtained by conditioning in cohort models. Marginal and conditional modeling, relation to direct and indirect standardization, inverse probability weighting and regression modeling. Causality and graphical models in epidemiology. Mediation and time-dependent confounding.

Target Group: Biostatisticians and mathematically inclined epidemiologists.

Form: Lectures with discussions and occasional theoretical exercises.

Language: English or Danish depending on the audience.

**ECTS**: 2.7

Course Organizer: Michael Væth, Department of Biostatistics, University of Aarhus.

**Teachers:** Niels Keiding, Per Kragh Andersen, Svend Kreiner, Esben Budtz-Jørgensen, Department of Biostatistics, University of Copenhagen and Michael Væth, Department of Biostatistics, University of Aarhus.

Number of Participants: Max. 30 participants.

Dates and Times: 8, 9, and 10 January 2007 from 9 to 16

Place: Victor Albeck Building, University of Aarhus, Vennelyst Boulevard 4, 8000 Århus.

Course Fee: 3800 Dkr. Participation is without cost for PhD students at universities in Denmark.

**Application:** Application forms can be printed/downloaded from the homepage of the PhD programme at the Faculty of Health Sciences, University of Aarhus: <a href="http://www.health.au.dk/forskeruddannelsen/skemaer">http://www.health.au.dk/forskeruddannelsen/skemaer</a>

The completed form is sent to the PhD Administration, University of Aarhus, Vennelyst Boulevard 9, 8000 Århus, and must be received by noon on Monday December 4 2006.

For further information about the course see the homepage of the Danish Graduate School in Biostatistics: <a href="http://phdbiostat.dk/biostatistik/">http://phdbiostat.dk/biostatistik/</a> or contact the course organizer, Michael Væth, e-mail: <a href="mailto:vaeth@biostat.au.dk">vaeth@biostat.au.dk</a> or phone: 8942 6129.

FORSKERSKOLEN I BIOSTATISTIK 19. oktober 2006

# Foreløbigt kursusprogram 2007

### Biostatistisk Afdeling, KU

Epidemiologi for biostatistikere v/ Michael Væth, Niels Keiding m.fl. (8.-10. januar, Århus Universitet). Se annonce andetsteds i bladet.

R for biostatistikere v/ Peter Dalgaard (17.-19. januar)

Multivariatanalyse af kategoriserede variable v/Svend Kreiner (16. og 23. februar, 2., 9. og 16. marts)

Adaptive designs for clinical trials v/ Chris Jennison og Bruce Turnbull (7.-8. maj)

Statistisk analyse af overlevelsesdata for biostatistiske/statistiske ph.d.-studerende v/ Thomas Scheike og Per Kragh Andersen (17.-19. september., 8.-10. oktober)

Statistical graphics in R v/ Paul Murrell (efterår)

Kursusbeskrivelser vil blive lagt på Forskerskolens hjemmeside, <u>www.phdbiostat.dk</u> i løbet af november.

# DEPARTMENT OF APPLIED MATHEMATICS AND STATISTICS UNIVERSITY OF COPENHAGEN



## Seminar i matematisk statistik og sandsynlighedsregning.

Seminaret afholdes kl. 15:15 i auditorium 10 på H.C. Ørsted Institutet. Efter seminaret serveres der te og chokolade i lokale E325.

Fredag den 17. November 2006: Speaker: Enno Mammen, University of Manheimm. Title: "Reconsidering the Random Coefficient Model"

#### Abstract:

Linearity in a causal relationship between a dependent variable and a set of regressors is a common assumption throughout Economics. In this paper we consider the case when the coefficients in this relationship are random and distributed independently from the regressors. Specifically, our aim is to estimate the distribution of the coefficients. To this end, we propose a kernel based estimator for the joint probability density of the coefficients. Although this estimator shares certain features with standard nonparametric kernel density estimators, it also differs in some important characteristics which are due to the very different setup we are considering. Most importantly, the kernel is nonstandard, and derives from the theory of Radon transforms. We establish the large sample behavior of this estimator, in particular rate optimality and asymptotic distribution. In addition, we extend the basic model to cover extensions including endogenous regressors, additional controls, and near-linearity of the model. Finally, we analyze the properties of the estimator in finite samples by a simulation study, as well as an application to consumer demand using British household data. The talk reports on joint work with Stefan Hoderlein and Jussi Klemelä.

# DEPARTMENT OF APPLIED MATHEMATICS AND STATISTICS UNIVERSITY OF COPENHAGEN



Joint seminar in Statistics and Financial Econometrics, Department of Applied Mathematics and Statistics & Finance Research Unit, Institute of Economics.

Seminaret afholdes kl. 15:15 i auditorium 10 på H.C. Ørsted Institutet. Efter seminaret serveres der te og chokolade i lokale E325.

Fredag den 24. November 2006:

Speaker: Massimo Guidolin, University of Manchester Business School, UK, and Insubria University, Varese, Italy.

Title: "Regime Shift Modelling of Size and Value Anomalies in Stock Market Returns."

#### Abstract:

This paper finds strong evidence of time-variations in the joint distribution of returns on a stock market portfolio and portfolios tracking size- and value effects. Mean returns, volatilities and correlations between these equity portfolios are found to be driven by underlying regimes that introduce short-run market timing opportunities for investors. The magnitude of the premia on the size and value portfolios and their hedging properties are found to vary significantly across regimes. Regimes are shown to have a large impact on the optimal asset allocation - especially under rebalancing - and on investors welfare. Regimes also have a considerable impact on hedging demands, which are negative when the investor starts from more favorable regimes and positive when starting from bad states..

# DEPARTMENT OF APPLIED MATHEMATICS AND STATISTICS UNIVERSITY OF COPENHAGEN



## Seminar i matematisk statistik og sandsynlighedsregning.

Seminaret afholdes kl. 15:15 i auditorium 10 på H.C. Ørsted Institutet. Efter seminaret serveres der te og chokolade i lokale E325.

Onsdag den 29. November 2006:

Speaker: Jan Hannig, Associate Professor, Department of Statistics, Colorado State University.

Title: "Extreme Value Theory for SiZer"

### Abstract:

SiZer is a powerful method for exploratory data analysis. In this paper approximation to the distributions underlying the statistical inference are investigated, and large improvements are made in the approximation using extreme value theory. This results in improved size, and also in an improved global inference version of SiZer. The main points are illustrated with real data and simulated examples.

tom

## AC-fuldmægtig til Statistisk Metode

En stilling som AC-fuldmægtig er ledig i Danmarks Statistiks metodekontor.

## Arbejdsområder

Metode har til formål at styrke Danmarks Statistiks anvendelse af statistiske metoder og medvirke til at forbedre og optimere produktionsprocessen fra dataindsamling til publicering. Et væsentligt indsatsområde i 2007 bliver systematisk fejlsøgning. Nogle af de vigtigste arbejdsopgaver i Metode er:

Rådgivning inden for statistiske metoder, fx fejlsøgning, stikprøver, estimation, usikkerhedsvurderinger, sæsonkorrektion og indeksberegninger.

- Udvikling og implementering af systematiske metoder til fx optimering af stikprøver, fejlsøgning, sæsonkorrektion og imputering af data.
- Udarbejdelse af vejledninger og temapublikationer om statistiske metoder.
- Undervisning i statistiske metoder.
- Udviklingsprojekter og statistiske analyser.

### Kvalifikationer

Der forudsættes et solidt kendskab til statistiske metoder opnået fx gennem en samfunds- eller naturvidenskabelig uddannelse eller erhvervserfaring fx med systematisk fejlsøgning, operationsanalyse eller stikprøver. Du vil som udgangspunkt få ansvarsområder indenfor dine uddannelsesmæssige og erhvervsmæssige kompetencer, ligesom der vil blive tale om deltagelse i tværgående opgaver.

Der stilles krav om både selvstændighed og evne til samarbejde. Desuden skal du have flair for og lyst til formidling, både mundtligt og skriftligt. Der er tale om et udadvendt job, hvor kontakt til Danmark Statistiks ansatte bliver en væsentlig del af hverdagen.

Metode er for tiden bemandet med en kontorchef, en specialkonsulent og fire AC-fuldmægtige.

### Løn og ansættelse

AC-fuldmægtige aflønnes efter overenskomst for akademikere i staten. Ansættelsesområdet er Økonomi- og Erhvervsministeriet med tilhørende institutioner. Afhængig af ansøgerens kvalifikationer vil der være mulighed for at forhandle et kvalifikationstillæg.

#### Yderligere oplysninger

Yderligere oplysninger om stillingens indhold kan fås ved henvendelse til kontorchef Peter Linde på **T** 39 17 30 14.

#### Ansøgning

Skriftlig ansøgning med CV samt kopi af eksamensbevis skal være Danmarks Statistik i hænde senest **onsdag den 15. november kl. 12.00**. Ansøgningen mærkes "Metode" og sendes til personalechef Lotte Spanggaard, Danmarks Statistik, Sejrøgade 11, 2100 København Ø.

Danmarks Statistik ønsker at fremme ligestillingen og opfordrer derfor alle kvalificerede til at søge stillingen uanset alder, køn, race, religion eller etnisk tilhørsforhold.

Danmarks Statistik er den centrale myndighed for den danske statistik og er placeret i Økonomi- og Erhvervsministeriet. Vi indsamler, bearbejder og offentliggør statistiske oplysninger vedrørende samfundsforhold. Vi er ca. 570 ansatte og har en familievenlig arbejdsplads med flekstid og gode udviklingsmuligheder

# Elektronisk fakturering af DSTS-kontingentet er ikke mulig

## Kære DSTS-medlem

I forbindelse med dette års opkrævning af kontingenter har foreningen modtaget flere krav fra offentlige arbejdspladser, der betaler kontingentet for deres medarbejdere, om elektronisk faturering. Vi må desværre se os nødsaget til at afvise at udsende elektroniske faktura i forbindelse med kontingentopkrævning. Ønsker medlemmer derfor fortsat at få deres kontingent betalt af arbejdsgiveren, så må de selv arrangere, hvordan det skal foregå. Hvis arbejdsgiveren ikke kan betale almindelige girokort, så må vi henstille til at medlemmet f.eks. selv indbetaler og efterfølgende får kontingentet refunderet.

For vores lille organisation er det ikke administrativt muligt for os at opkræve kontingentet via elektroniske faktura. Det er heller i længden holdbart, hvis vi skal efterbehandle hvert enkelt tilfælde, hvor vi efterfølgende modtager krav om elektronisk fakturering.

Mvh. Niels Richard Hansen, kasserer.

# Kalender 2006

(arrangementer annonceret i MEDDELELSER)

Dato	No.	Aktivitet	
3/11	7/06	Seminar, Afd. Anv. Mat og Stat., Københavns Universitet Douglas Wiens, University of Alberta: Robust Prediction and Design in Spatial Studies	
7-8/11	7/06	Todagesmøde, Københavns Universitet, se www.stat.ku.dk/dsts	
8/11	7/06	Bioinformatics Research Center, University of Aarhus Morten Lindow: Intragenomic matching reveals huge potential for miRNA regulation in plants	
9-10/11	4/06	Forskerskolen i Biostatistik, København: Missing data, particularly in Longitudinal Studies	
17/11	8/06	Seminar, Afd. Anv. Mat og Stat., Københavns Universitet Enno Mammen, University of Manheimm: Reconsidering the Random Coefficient Model	
24/11	8/06	Seminar, Afd. Anv. Mat og Stat. & Finance Research Unit, KU Massimo Guidolin, University of Manchester Business School, UK, and Insubria University Varesa, Italy: Regime Shift Modelling of Size and Value Anomalies in Stock Market Returns	
27/11	6/06	Forskerskolen i Biostatistik, København: Henrik Ravn: Survival blas i observationelle studier af rutinevacciners effekt på børnedødeligheden	
29/11	8/06	Seminar, Afd. Anv. Mat og Stat., Københavns Universitet Jan Hannig, Associate Professor, Department of Statistics, Colorado State University: Extreme Value Theory for SiZer	
6/12	7/06	Bioinformatics Research Center, University of Aarhus Anne-Mette Hein: Statistical analysis of gene and exon expression microarrays	
7/12	6/06	EFSPI, Brussels: Adaptive Randomisation - Today and Tomorrow	

# Kalender 2007

(arrangementer annonceret i MEDDELELSER

Date	No.	Aktivitet
8-10/1 2007	10000	Forskerskolen i Biostatistik, Århus: Epidemiology for Biostatisticians

#### Deadlines i år 2006

	MEDDELELSER udkommer	Frist for indlevering af bidrag:	
9:	4. december	24. november	