University of Zurich[UZH]

Master Program in Biostatistics

Annual Report

Academic Years 2011–2013

Contents

Preface

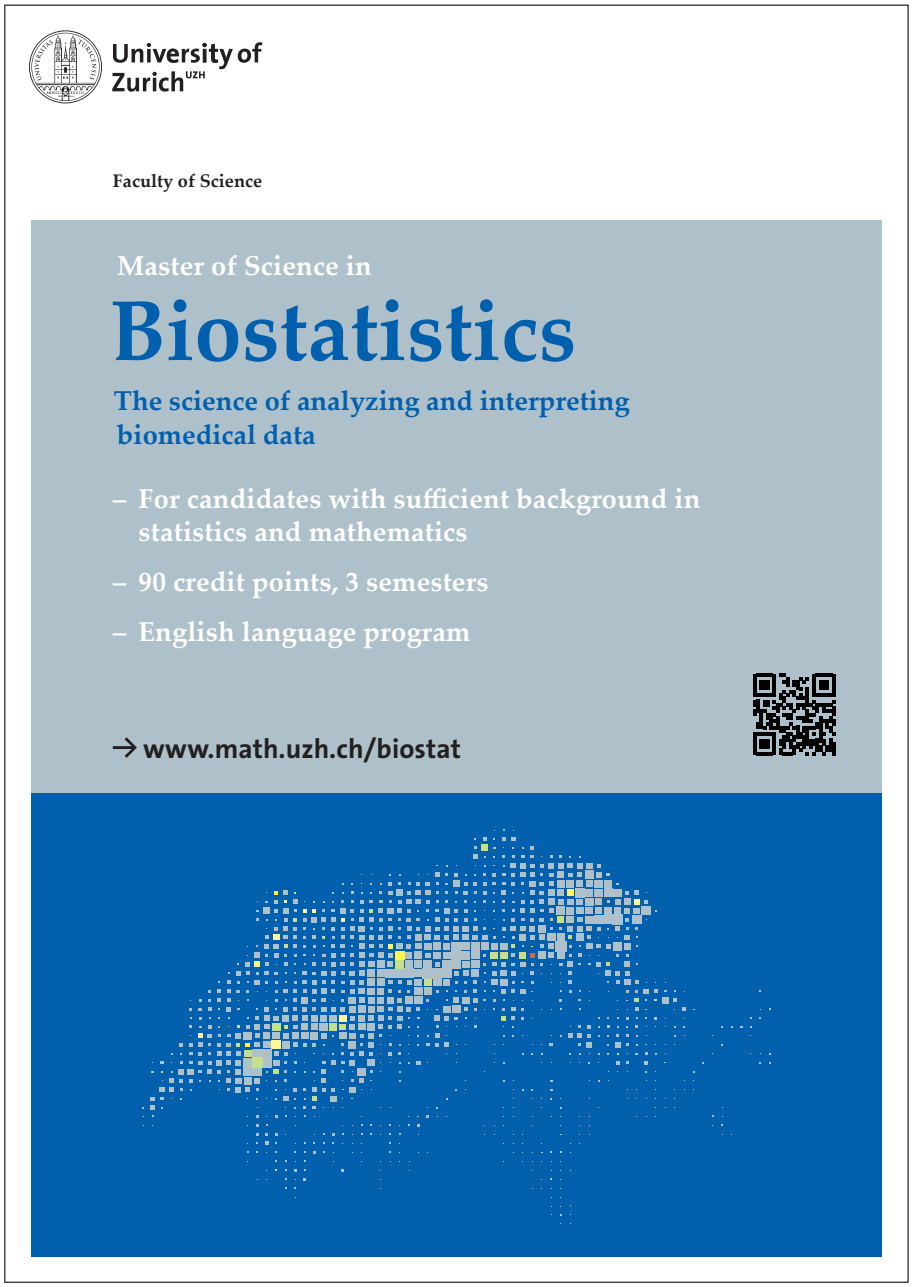
The first students have graduated and a new generation has started the program this month. It is a good time to critically look back and enthusiastically look forward.

More than two years into the program I am still often wondering whether we have done everything correctly, whether setting up the program was worthwhile. In words of a construction entrepreneur: is the construction safe, useful, valuable and used?

To find answers to these questions we had to gather data about our achievements, accomplishments, etc. We had to assemble the core of this document. We are convinced that we can answer exclusively 'yes' to the previous questions. We might have a slightly biased view on the responses and therefore would like to give an objective view of the state of the Master Program as well as our plans. Hence the reader is cordially invited to give answers as well.

September 2013

Reinhard Furrer
Managing Director



The new poster of the Master Program in Biostatistics.
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1 Highlights of the year

First Graduates

The most important highlight of the academic year 2012–2013 is the graduation of our first two students: Shi-Jing Liao and Florian Gerber both presented their master theses work in June with the titles "Fractional Polynomials with Test-based Bayes Factors" and "Different Implementations for Disease Mapping with the Besag-York-Mollié Model" respectively. Congratulations!

New Professor

In January the University Council appointed Torsten Hothorn as associate professor ad personam for biostatistics increasing the core faculty active in the program to five professors.

Professor Hothorn started teaching in the spring semester with a course on "Mixed Models for Longitudinal Data". Moreover, he became active in the creation of the new PhD program in Epidemiology and Biostatistics which is now part of the Life Science Zurich Graduate School with Professor Hothorn serving as Deputy Director.

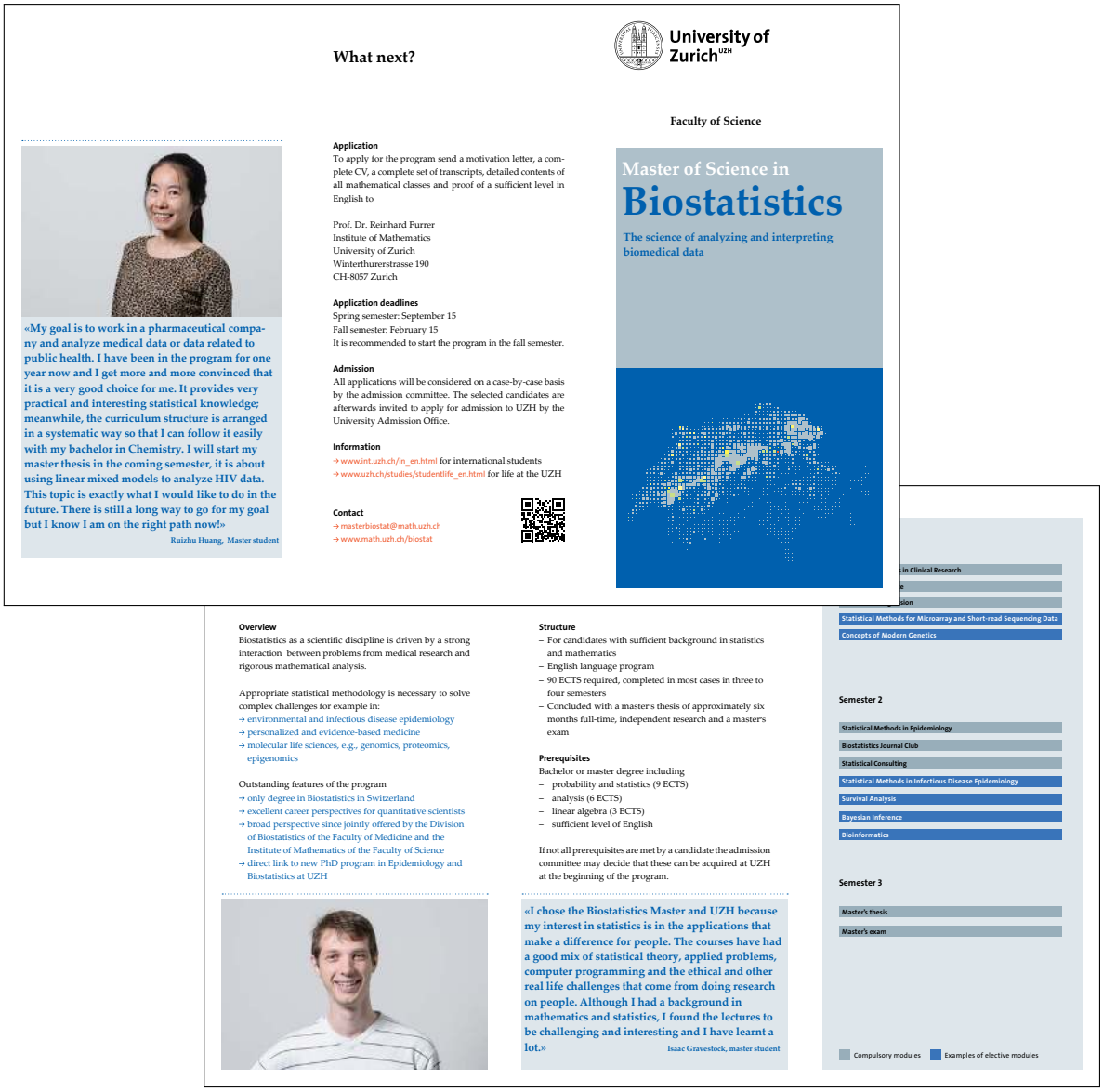
Bayesian Biostatistics

In June 2013 we organized a master-level block course on Bayesian Biostatistics with external lecturers Peter Müller of the University of Texas at Austin and Gary Rosner of Johns Hopkins University, both being widely known experts in the field. The course not only attracted master students but also a large number of auditors from other universities and the pharamaceutical industry.

New Design

Starting in September newly designed posters and flyers and a little later the website feature the new logo of the Master Program in Biostatistics.

It has been created by Reinhard Furrer using R and Bluetongue data from 2008 (BTV-8, from TVD). More specifically, the size of the square is proportional to the total number of animals at risk within each of the $5 \times 5\text{km}^2$ area. The color indicates the total number of infected animals, ranging between 0 (gray) and 17 (orange).
See also Willgert et al. PMID: 21590673.



What next?

«My goal is to work in a pharmaceutical company and analyze medical data or data related to public health. I have been in the program for one year now and I get more and more convinced that it is a very good choice for me. It provides very practical and interesting statistical knowledge; meanwhile, the curriculum structure is arranged in a systematic way so that I can follow it easily with my bachelor in Chemistry. I will start my master thesis in the coming semester, it is about using linear mixed models to analyze HIV data. This topic is exactly what I would like to do in the future. There is still a long way to go for my goal but I know I am on the right path now!»

Ruizhu Huang, Master student

Application
To apply for the program send a motivation letter, a complete CV, a complete set of transcripts, detailed contents of all mathematical classes and proof of a sufficient level in English to

Prof. Dr. Reinhard Furrer
Institute of Mathematics
University of Zurich
Winterthurerstrasse 190
CH-8057 Zurich

Application deadlines
Spring semester: September 15
Fall semester: February 15
It is recommended to start the program in the fall semester.

Admission
All applications will be considered on a case-by-case basis by the admission committee. The selected candidates are afterwards invited to apply for admission to UZH by the University Admission Office.

Information
→ www.int.uzh.ch/in_en.html for international students
→ www.uzh.ch/studies/studentlife_en.html for life at the UZH

Contact
→ masterbiostat@math.uzh.ch
→ www.math.uzh.ch/biostat

University of Zurich[UZH]

Faculty of Science

Master of Science in
Biostatistics

The science of analyzing and interpreting biomedical data

Overview
Biostatistics as a scientific discipline is driven by a strong interaction between problems from medical research and rigorous mathematical analysis.

Appropriate statistical methodology is necessary to solve complex challenges for example in:
→ environmental and infectious disease epidemiology
→ personalized and evidence-based medicine
→ molecular life sciences, e.g., genomics, proteomics, epigenomics

Outstanding features of the program
→ only degree in Biostatistics in Switzerland
→ excellent career perspectives for quantitative scientists
→ broad perspective since jointly offered by the Division of Biostatistics of the Faculty of Medicine and the Institute of Mathematics of the Faculty of Science
→ direct link to new PhD program in Epidemiology and Biostatistics at UZH

Structure
– For candidates with sufficient background in statistics and mathematics
– English language program
– 90 ECTS required, completed in most cases in three to four semesters
– Concluded with a master's thesis of approximately six months full-time, independent research and a master's exam

Prerequisites
Bachelor or master degree including
– probability and statistics (9 ECTS)
– analysis (6 ECTS)
– linear algebra (3 ECTS)
– sufficient level of English

If not all prerequisites are met by a candidate the admission committee may decide that these can be acquired at UZH at the beginning of the program.

«I chose the Biostatistics Master and UZH because my interest in statistics is in the applications that make a difference for people. The courses have had a good mix of statistical theory, applied problems, computer programming and the ethical and other real life challenges that come from doing research on people. Although I had a background in mathematics and statistics, I found the lectures to be challenging and interesting and I have learnt a lot.»

Isaac Gravestock, master student

Statistical Methods for Microarray and Short-read Sequencing Data
Concepts of Modern Genetics

Semester 2

Statistical Methods in Epidemiology
Biostatistics Journal Club
Statistical Consulting
Statistical Methods in Infectious Disease Epidemiology
Survival Analysis
Bayesian Inference
Bioinformatics

Semester 3

Master's thesis
Master's exam

Compulsory modules
Examples of elective modules

The new flyer of the Master Program in Biostatistics.
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2 Accomplishments and Goals

During the first two academic years of the Master Program in Biostatistics we have

- successfully implemented a sound, modern and interesting curriculum in Biostatistics;
- recruited a little over 20 students from all over the world;
- established a personal mentoring system for our students ensuring, as far as possible, optimal study plans and quick help in case of difficulties;
- had several guests from research and industry in the lectures presenting concrete applications: Simon Wandel and Beat Neuenschwander from Novartis (fall 2011), Sabine Rohrmann from ISPM (spring 2012 and 2013), Kaspar Rufibach from Roche (fall 2012), Björn Bornkamp from Novartis (fall 2012);
- organized three courses taught by external lecturers who are all well-known experts in their fields (Jan Beyersmann: Survival Analysis, Michael Höhle: Statistical Methods in Infectious Disease Epidemiology, Peter Müller/Gary Rosner: Bayesian Biostatistics);
- distributed over 400 promotional posters and 1400 flyers at universities and conferences all over Europe;
- initiated listings of our program on "berufsberatung.ch" and "swissuniversity.ch". We will have an entry (profile of Florian Gerber) in a new brochure about "Mathematics and Computational Science and Engineering" by the "Schweizerisches Dienstleistungszentrum für Berufsbildung, Berufs-, Studien- und Laufbahnberatung".

Together with colleagues from the Institute of Mathematics we established a new minor subject in Applied Probability and Statistics for bachelor students and together with colleagues from the Institute of Social and Preventive Medicine initiated the creation of a new PhD program in Epidemiology and Biostatistics. The three programs together assure a continued quality education in statistics from a bachelor to a doctoral level.

Starting the third academic year of the program we have passed most early stage troubles. The goal now is to continue and if possible to solidify our strong points, e.g., the compulsory part of the curriculum and the personal mentoring system. We aim to extend and improve with respect to the following points:

- targeted advertising for the program in order to reach more students graduating from Swiss Universities;
- increase of the number of applications in order to be able to be even more selective at admission and to this end use, e.g., international platforms like "findamasters.com";
- cooperation with partners from the pharmaceutical industry in order to obtain funding for students and continuing to provide interesting courses and teaching opportunities for their staff;

– collaboration with the Mathematical Biometry Program at Ulm University, Germany, and potentially the Master of Statistics program at Hasselt University, Belgium;
– benefit from the synergies created by the axis "Minor in Applied Probability and Statistics" to "Master in Biostatistics" to "PhD in Epidemiology and Biostatistics".

→www.berufsberatung.ch
→www.swissuniversity.ch
→www.sdbb.ch
→www.findamasters.com
→www.math.uzh.ch/aws
→www.epibiostat-phd.uzh.ch

3 Applications, Admission and Recruitment

Application, admission and recruitment numbers for the Master Program in Biostatistics have been fluctuating heavily since its creation in 2011. A natural difference between fall and spring enrollment is due to our firm advice to all interested candidates that starting in the fall is advantageous with respect to curriculum and study planning. From the beginning the program was more visible internationally than nationally receiving 8 times more international applications than national ones on average. Time-intensive email correspondence with potential candidates concerning their profiles allows to have rather high admission rates among those applicants who actually submit their documents.

Interested candidates still have difficulties in understanding that the admission process for a specialized master at UZH is two-fold: first application to an admission committee and second application to the Admission Office of the University.

We try to ask reasons from those candidates that are admitted but can not actually be recruited. The top reason is the high cost of living in Switzerland and this problem is accentuated by the fact that we are not able to offer any funding or teaching/research assistant jobs for students.

From an administrative point of view there has been one novelty in the admission process. Since enrollment for the spring 2013 semester we can test the English language level of our candidates in the framework of an admission interview. This is important for our program in particular since a large part of the applications we receive are from already well-qualified scientists who desire to deepen their knowledge in statistics and who obviously also have sufficient knowledge of English.

The average profile of our applicants does still not correspond to the target public we had in mind at the time of creation of the program. We have only few applications from candidates in mathematics/statistics, physics, computer science or engineering. Hopefully this gap can be closed in the near future by increasing targeted advertising approaches and by in general increasing the number of applications. Our goal in numbers remains to be able to admit 12 to 15 students per academic year.

→http://www.math.uzh.ch/biostat/index.php?id=application

4 Teaching

Our teaching activities can be divided into a compulsory part providing the foundations of biostatistics in four courses and experience in application and research in the Statistical Consulting module, the Biostatistics Journal Club and the master thesis and exam. The compulsory courses are by now well developed in content and learning objectives. They are nicely coordinated among each other and with respect to the Statistical Consulting Module. Moreover, other students than only those in biostatistics started to attend. For example, the Likelihood Inference course is regularly attended by students from the Master Program in Statistics of ETH and by students of the programs in mathematics at UZH. The courses in Statistical Methods in Clinical Research and in Epidemiology are also appreciated by statistics students from ETH and, more recently, by advanced medical students and PhD students from the Swiss School of Public Health (SSPH+). Finally, the course in Generalized Regression figures, among others, in the course program of the PhD Program in Ecology of UZH and ETH. The Statistical Consulting Module offers a first hands-on experience in the practice of statistics in biomedical research. Within this framework our students have provided statistical analyses for projects to several researchers in the medical faculty and the faculty of science. It therefore helps to spread word about the Master Program itself among researchers in the biomedical sciences at UZH.

Coming to the modules that can be counted as statistical electives we have to admit that the offer of internal courses is probably too small. The main reason for this is lack of personel able to provide such an offer. Nevertheless, it is possible for a student to graduate from the program attending only internally offered modules. Most students choose to attend at least one or two courses at ETH, which is desirable in view of acquiring a broadly based education. On the other hand, we aim to offer approximately one course per year on a topic that is rarely touched upon in a master-level program, e.g. Bayesian Biostatistics, Statistical Methods in Infectious Disease Epidemiology. These courses not only provide knowledge about a certain methodology but also widen the horizon of our students with respect to approaches other statisticians take to approach research questions and with respect to international contacts among statisticians and practitioners.

In addition to the regular modules there is a large offer of talks concerning statistics in Zurich. The faculty members involved in the program are co-organisers of the Zurich Colloquium in Applied Statistics (Zükost) and the Research Seminar in Statistics. Moreover, there is a small internal seminar series in applied statistics where our master students are given the chance to present their work. Within the Zükost framework we aim to offer approximately two talks per semester with a biostatistics subject and at a level accessible to master students.

The old poster of the Master Program in Biostatistics

5 Facts and Figures

5.1 Recruitment

Applications	**Total**	Admitted	Recruited	Dropouts
Fall 2011	15	11	4	1
Spring 2012	7	5	4	0
Fall 2012	21	18	10	2
Spring 2013	4	3	2	0
Fall 2013	16	12	3	NA
Total	**63**	47	23	3

Applications	**Total**	Asia	Africa	Australia	North America	South America	Europe	Switzerland
Fall 2011	15	3	2	0	2	0	5	3
Spring 2012	7	0	1	1	0	0	2	3
Fall 2012	21	6	1	1	6	1	2	1
Spring 2013	4	1	0	0	0	0	2	1
Fall 2013	16	4	3	0	2	0	4	3
Total	**63**	14	7	2	10	1	17	12

Applications	**Total**	Female	Math/ Stats	Life Science
Fall 2011	15	9	9	2
Spring 2012	7	3	1	5
Fall 2012	21	13	9	3
Spring 2013	4	2	1	2
Fall 2013	16	7	7	6
Total	63	47	23	3

5.2 Theses

Student	**Title**	**Date**
Sih-Jing Liao	Fractional polynomials with test-based Bayes factors (Held)	June 11 2013
Florian Gerber	Disease Mapping with the Besag-York-Mollié Model Applied to a Cancer and a Worm Infections Dataset (Furrer)	June 13 2013

5.3 Modules

Fall semester 2011

Number	Title		Enrollment*
STA402	Likelihood Inference	(Held)	17
STA404	Statistical Methods in Clinical Research	(Rufibach)	9
STA406	Generalized Regression	(Furrer)	6
STA425	Survival Analysis	(Beyersmann)	4
STA431	Statistical Methods for the Analysis of Microarray and Short-read Sequencing Data	(Rehrauer)	2†

Spring semester 2012

Number	Title		Enrollment
STA408	Statistical Methods in Epidemiology	(Held)	9
STA422	Bayesian Inference	(Riebler)	5
STA427	Statistical Methods for Infectious Disease Epidemiology	(Höhle)	5/10
STA429	Spatial Epidemiology	(Furrer)	2
STA480	Biostatistics Journal Club	(Held/Furrer)	5
STA490	Statistical Consulting	(Held/Furrer/Seifert)	3

Fall semester 2012

Number	Title		Enrollment
STA402	Likelihood Inference	(Furrer)	11
STA404	Statistical Methods in Clinical Research	(Held)	10
STA406	Generalized Regression	(Schrödle)	11
STA426	Statistical Methods for Microarray and Short-read Sequencing Data	(Robinson/Rehrauer)	8†
STA490	Statistical Consulting	(Seifert)	1

Spring semester 2013

Number	Title		Enrollment
STA408	Statistical Methods in Epidemiology	(Held)	10
STA421	Bayesian Biostatistics	(Müller/Rosner)	15/30
STA423	Mixed Models for Longitudinal Data	(Hothorn)	13
STA480	Biostatistics Journal Club	(Held)	9
STA490	Statistical Consulting	(Held/Furrer/Seifert)	7

5.4 Talks and Seminars

Research Seminar in Applied Statistics: non-student talks

Name	Title	Date
M. Paul (UZH)	Surveillance of infectious diseases	Nov 11 2011
T Gsponer (U Bern)	A Bayesian view on causal inference	Apr 26 2012
A. Bernstein (UZH)	Intelligent Discovery Assistants	Nov 29 2012
T. Hothorn (LMU)	A fast and memory-efficient boosting implementation for generalized linear and additive models	Dec 1 2012

Zükost: talks initiated by faculty members of the program

Name	Title	Date
T. Stadler (ETHZ)	Recovering macroevolutionary processes using phylogenetic methods	Oct 27 2011
N. Hens (U Hasselt)	The Statistical Analysis of Serial Seroprevalence and Final Size Data to Estimate Infectious Disease Parameters for Hepatitis A in Belgium	Nov 3 2011
S. Unkel (Open University)	On assessing time-varying association for shared frailty models with bivariate current status data	Dec 1 2011
S. Greenland (UCLA)	Causal Inference: Much More than Just Statistics	Mar 15 2012
B. Bornkamp (Novartis)	Prior distributions for dose-response	May 10 2012
S. Barthelmé (TU Berlin)	Point process models for eye movements	Oct 25 2012
M. van de Wiel (VU Amsterdam)	Bayesian analysis of RNA sequencing data by estimating multiple shrinkage priors	Feb 21 2013
T. Kneib (U Göttingen)	Beyond Mean Regression	Apr 11 2013

*Enrollment gives the number of students that have taken the exams as well as the total number of attendees that were present for the majority of the lectures.

†Only those that have been enrolled via the University.

5.5 Faculty and Staff

Faculty

Reinhard Furrer	Institute of Mathematics, University of Zurich **Managing Director**
Leonhard Held	Institute of Social and Preventive Medicine Division of Biostatistics, University of Zurich **Program Director**
Torsten Hothorn	Institute of Social and Preventive Medicine Division of Biostatistics, University of Zurich
Mark Robinson	Institute of Molecular Life Sciences, University of Zurich
Burkhardt Seifert	Institute of Social and Preventive Medicine Division of Biostatistics, University of Zurich

UZH Lecturers

Hubert Rehrauer	Functional Genomics Center Zurich
Kaspar Rufibach	Then: IFSPM, Division of Biostatistics, University of Zurich Now: Roche, Basel
Andrea Riebler	Then: IFSPM, Division of Biostatistics, University of Zurich Now: Department of Mathematical Sciences, Norwegian University of Science and Technology
Birgit Schrödle	Then: IFSPM, Division of Biostatistics, University of Zurich Now: Demoscope Research and Marketing, Adligenswil

External Lecturers

Jan Beyersmann	Institute of Statistics, Ulm University
Michael Höhle	Department of Mathematics, Stockholm University
Peter Müller	Department of Mathematics, University of Texas at Austin
Gary Rosner	The Sidney Kimmel Comprehensive Cancer Center Johns Hopkins University

Staff

Eva Furrer	Institute of Social and Preventive Medicine Division of Biostatistics, University of Zurich **Scientific coordinator**
Franziska Robmann	Institute of Mathematics, University of Zurich

6 Interview with Torsten Hothorn

Torsten Hothorn was appointed by the University board as associate professor ad personam of biostatistics starting April 1st. Professor Hothorn studied statistics with a minor in computer science at the Technical University Dortmund receiving his PhD degree in 2003. Afterwards he has been a lecturer for biostatistics at the Department of Medical Informatics, Biometry and Epidemiology of the Friedrich-Alexander University Erlangen-Nürnberg, where he received his habilitation in 2006. In 2007 T. Hothorn became professor of biostatistics at the Ludwig-Maximilians-Universität München.

REINHARD FURRER: What is your 'personal' definition of biostatistics and what makes a good biostatistician?

TORSTEN HOTHORN: That's actually a tough question and my answer is very subjective and probably not shared by many of my fellow biostatisticians. For a start, I think that 'bio' indeed means all aspects of the life sciences and not 'medicine' exclusively. I work with both physicians and ecologists and similar problems occur in both disciplines, for example the interpretation of effects estimated from observational data, correlated or missing observations. Biostatistics clearly is a branch of statistics and as such uses the language of mathematics to solve problems. In this world it is easy to get carried away by interesting technical challenges, for example the improvement of the approximation of the distribution of a certain test statistic, but these improvements often prove practically irrelevant later on. So, focusing on potentially rough solutions to practically relevant questions rather than exact solutions to exotic problems is more important. But often it is very hard to get such papers published for there is no agreement in the community what 'important' problems really are. So, in my eyes, a good and open-minded biostatistician tries to focus on problems that come up when talking to people one is collaborating with. These problems are, almost by definition, important. The real fun starts when you start switching roles with your collaborators and become the principle investigator on a subject-matter topic. You'll know how it feels being the one in need for good advice.

RF: Your CV, especially your citation metrics looks impressive. What were your key factors and events for that?

TH: Citation metrics are bogus, of course, but I admit that I do have a look at the papers that cite my work from time to time. To see the variety of problems people solved by means of procedures described in one of my papers is often surprising and always stimulating. The vast majority of these papers are published in non-stats journals and it seems that some contributions by my co-authors and myself are useful approaches to some practically important problems. But the key issue is high-level software. If you want people to analyse their data the way you think is appropriate, you need to give them the tools to do so. I did this for most of my papers and it seems that some people picked up these tools.

Bringing this software to the attention of a large audience would not have been possible without the success of the R project. So if you want to pin it down to one specific event: In 1997 I was a first-year undergraduate studying statistics in Dortmund. During that first year we were forced to learn a rather strange and archaic statistical analysis system. One day, one of my fellow students came into the class room waiving a floppy disk and shouting 'Everything will be fine, we'll never have to use XXX again!'. The floppy contained the first published version of R which I quickly installed on my Linux system. And his prediction was accurate, I ever since exclusively worked in this environment.

RF: While some years ago, the quote "In God we trust, all others bring data." was heard everywhere, it seems that now we more and more have to face "Do not trust data that you have not forged yourself". What is the role of statistics/a statistician to regain credibility for quantitative approaches with the larger public but also within scientific publications?

TH: Few people actually forge or manipulate data, but errors just happen — think of the copy-and-paste operation gone wild that caused an error in the Reinhart and Rogoff paper. The error was detected by a student trying to reproduce the results. Finding such errors is hardly ever possible without having access to the 'raw' data (whatever this really is) but this and other cases have convinced many people that we have to change our publishing culture in a way that open-data is the rule and no longer the exception. Since the beginning of this year, the British Medical Journal, to name a prominent case, started to implement such a policy.

Torsten Hothorn - Mozilla Firefox

Firefox | Torsten Hothorn

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Division of Biostatistics

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- Homepage
- Publications
- Software
- Books
- Journals
- Talks
- Teaching
- Students
- Projects

Books

The R Series
I serve as one of the editors of CRC's The R Series.

A Handbook of Statistics Analyses Using R (2nd Edition)
by Brian S. Everitt and Torsten Hothorn

- Shows how to obtain informative graphical output using R
- Provides R code so readers can perform their own analyses
- Emphasizes the practical application and interpretation of results rather than focusing on the theory behind the analyses
- Offers an introduction to R, including a summary of its most important features
- Contains many examples and exercises

Software

Reviews

An Introduction to Applied Multivariate Analysis with R
by Brian S. Everitt and Torsten Hothorn

The majority of data sets collected by researchers in all disciplines are multivariate, meaning that several measurements, observations, or recordings are taken on each of the units in the data set. These units might be human subjects, archaeological artifacts, countries, or a vast variety of other things. In a few cases, it may be sensible to isolate each variable and study it separately, but in most instances all the variables need to be examined simultaneously in order to fully grasp the structure and key features of the data. For this purpose, one or another method of multivariate analysis might be helpful, and it is with such methods that this book is largely concerned. Multivariate analysis includes methods both for describing and exploring such data and for making formal inferences about them. The aim of all the techniques is, in general sense, to display or extract the signal in the data in the presence of noise and to find out what the data show us in the midst of their apparent chaos. An Introduction to Applied Multivariate Analysis with R explores the correct application of these methods so as to extract as much information as possible from the data at hand, particularly as some type of graphical representation, via the R software. Throughout the book, the authors give many examples of R code used to apply the multivariate techniques to multivariate data.

Software

Multiple Comparisons Using R
by Frank Bretz, Torsten Hothorn and Peter Westfall

Adopting a unifying theme based on maximum statistics, Multiple Comparisons Using R describes the common underlying theory of multiple comparison procedures through numerous examples. It also presents a detailed description of available software implementations in R. After giving examples of multiplicity problems, the book covers general concepts and basic multiple comparisons procedures, including the Bonferroni method and Simes$\hat{a}\hat{\epsilon}\hat{\tilde{n}}$ test. It then shows how to perform parametric multiple comparisons in standard linear models and general parametric models. It also introduces the multcomp package in R, which offers a convenient interface to perform multiple comparisons in a general context. Following this theoretical framework, the book explores applications involving the Dunnett test, Tukey$\hat{a}\hat{\epsilon}\hat{\tilde{n}}$s all pairwise comparisons, and general multiple contrast tests for standard regression models, mixed-effects models, and parametric survival models. The last chapter reviews other multiple comparison procedures, such as resampling-based procedures, methods for group sequential or adaptive designs, and the combination of multiple comparison procedures with modeling techniques. Controlling multiplicity in experiments ensures better decision making and safeguards against false claims. A self-contained introduction to multiple comparison procedures, this book offers strategies for constructing the procedures and illustrates the framework for multiple hypotheses testing in general parametric models. It is suitable for readers with R experience but limited knowledge of multiple comparison procedures and vice versa.

Software

Reviews

The interpretation of data almost always depends on a number of subjective arguments and decisions, such as the transformation of raw measurements before analysis or model selection procedures. It is impossible to describe these steps in the methods section of a paper, and we therefore should not only publish the data but also the complete computing environment that was used to calculate the results. Of course, this is only feasible in an open-source environment.

RF: Hiring your wife and you, UZH got two birds with one stone... What do you talk about at dinner table?

TH: Hardly ever about statistical problems (we schedule a meeting when we want to talk statistics) but we of course exchange community gossip occasionally. Like other couples with a little kid, we have plenty of family business to talk about. More and more of the talking is done by our daughter anyway. And she seems to care little about biostatistics (yet?).

RF: Thanks, Torsten, for sharing your thoughts with us.

→www.math.uzh.ch/hothorn

→dx.doi.org/10.1257/aer.100.2.573

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