Evening Lecture
“Statistics and Epidemiology - Mission Impossible?”

Iris Pigeot (Director, Leibniz Institute for Prevention Research and Epidemiology - BIPS)

Prerequisites for all courses:
- Basic knowledge of epidemiology
- Some background in statistical methods
- Knowledge of human biology [course 1].

Fees
- Fee I: Participants from companies and for-profit organisations
  € 350 per course, € 650 for two courses
- Fee II: Participants from academic & non-academic research institutions
  € 280 per course, € 500 for two courses
- Fee III: DGEpi members
  € 220 per course, € 410 for two courses
- Fee IV: Fulltime students, e.g. bachelor / master programs
  € 180 per course, € 350 for two courses

Location
University Bremen
SFG, Rooms 2010 and 2080
Enrique-Schmidt-Strasse
28359 Bremen

Registration
Please use the registration form on
www.bips-institut.de/weiteres/summer-school-2014.html

Deadline for registration is April 30th, 2014.
The number of participants is limited.
Registration is definite upon receipt of payment. Accommodation has to be organized by the participants.
A list with hotel suggestions, and further information on social events during the Summer School and how to find us are available on the website.

More information
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Welcome …

and thank you for your interest in the German Collaborative Summer School in Epidemiology. This new summer school is organised under the auspices of the German Society for Epidemiology (Deutsche Gesellschaft für Epidemiologie - DGEpi) and is based on a collaboration of the five universities in Münster, Greifswald, Bremen, Munich, and Bielefeld. The new school concept incorporates the long-term summer school and bachelor and master level teaching experiences in epidemiology of these five partners and is oriented towards a preparation for the challenges to epidemiology in a changing world.

The new summer school has a clear structure: The school will rotate between the partners every year and will provide introductory and advanced courses including recent trends in epidemiological research and methods. Courses will be organised and located at the hosting university. Thus, for those who have graduated a long time ago, returning to academia for a short summer week will be a rewarding and enjoyable event. Fees are moderate to enable participation, especially of young scientists.

In 2014, the summer school takes place in Bremen, Germany. Bremen is a beautiful city with maritime charm and open minded people, and also a large research cluster with seven public and private universities and numerous research institutes located within the city confines.

The summer school focuses on methods and modern applications of epidemiology and will communicate theoretical and practical experiences in epidemiological research - from study design to statistical analysis.

Come and spend a sunny summer week in beautiful Bremen, learning and enjoying academic life!

The BIPS Summer School Team

Course Outline

The German Collaborative Summer School in Epidemiology offers both introductory and advanced courses and therefore will meet the needs of health professionals, scientists and students interested in epidemiology, prevention, and public health. The working language of the courses will be English.

Morning Courses (08:30 am – 12:30 pm)

1 Cardiovascular Epidemiology (advanced level)
Vasan S. Ramachandran (Boston University, USA), Wolfgang Lieb (Kiel University, Germany)

Cardiovascular disease (CVD) is the number one cause of morbidity and mortality worldwide. Large epidemiological studies and major clinical trials have established the importance of CVD risk factors and subclinical atherosclerosis, and have identified CVD as a lifestyle and life course disease.

In this course, we will discuss the global burden of CVD, describe challenges in CVD epidemiology in this millennium and newer training approaches to face these challenges, modern methods for phenotypic assessment in national cohort studies including e-monitoring, e-health and electronic health records, recent advances in the epidemiology of CVD risk factors over the life course (including gender differences), novel imaging modalities in cohort studies including detection of subclinical disease and target organ damage (left ventricular hypertrophy), and individual CVD conditions, such as coronary heart disease, stroke, heart failure and atrial fibrillation.

We will elucidate the epidemiology and importance of novel genetic and non-genetic biomarkers in cardiovascular medicine, outline the principles of CVD risk prediction and describe methods to assess the incremental utility of novel risk factors.

2 Life Course Epidemiology (advanced level)
Edwin R. van den Heuvel (University Medical Center, Groningen/NL)

This course focuses on life course epidemiology as part of recent health research. Life course epidemiology is the study of exposures in earlier life stages such as antenatal, childhood or adolescence and later health outcomes, taking into account the pathways between the two and the evolution of health and disorders over time.

- Concepts of life course epidemiology
- Challenges in life course epidemiology, particularly with regard to causality
- Methodological aspects such as initial planning steps, study design considerations, specifically focussing on longitudinal studies and analysis
- Current research activities and experiences

Afternoon Courses (1:30 pm – 5:30 pm)

3 Statistical Thinking in Epidemiology (intermediate level)
John Bithell (Oxford University, UK)

The course will cover the statistical issues involved in making inferences from epidemiological data, making only limited assumptions about underlying mathematics or probability theory. It will use real examples from the literature and exemplify calculations interactively using the highly accessible R computing language.

- The nature of epidemiology and the role of statistics
- Probability and descriptive statistics; basic distributions; fundamental duality of models and data
- Classical statistical inference: hypothesis testing, point estimation and confidence intervals
- Likelihood, plausibility and an introduction to the Bayesian approach
- Linear regression model: fundamental properties and principles
- Generalised linear model and its application to proportions, counts and contingency tables

4 Applied Pharmacoepidemiology (basic level)
Edeltraut Garbe and team (Leibniz Institute for Prevention Research and Epidemiology - BIPS)

Pharmacoepidemiology involves the application of epidemiological methods to the study of the uses and effects of drugs in large unselected populations. This interactive course will provide methodological background and cover key issues typically encountered in pharmacoepidemiological research. Special topics will cover database research and some new concepts in pharmacoepidemiology.

The work program includes

- History of pharmacoepidemiology and current regulatory framework
- Signal generation
- Study designs of analytical pharmacoepidemiological studies
- Exposure measures and time window designs
- Confounding by indication and other biases
- Propensity score methods
- Overview of pharmacoepidemiological databases
- Drug utilisation research