

4th International Summer School 2012

Spatial-epidemiological modelling in Megacities

Statistical and spatial analysis for urban health under a changing climate

September 3 – 7, 2012

Programme (Draft)

Programme Directors:

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Location: University of Bielefeld Campus

www.uni-bielefeld.de/gesundhw/ag2/summerschoolmc/

List of lecturers

- Thomas Finkbeiner, MD, PhD (Centre for Disease Control and Prevention, Dar-es-Salam, Tanzania)
- Dominik Fischer, PhD (University of Bayreuth)
- Oliver Gruebner, PhD (Humboldt-Universität zu Berlin)
- Stefanie Helmer, M.Sc. (University of Bremen)
- Michael Höhle, PhD (Robert Koch Institute, Berlin)
- Heiko Jahn, M.Sc (University of Bielefeld)
- Mobarak Hossain Khan, PhD (University of Bielefeld)
- Boris Kauhl, Dipl. Geogr. (Maastricht University, NL)
- Thomas Krafft, PhD (Maastricht University, NL)
- Alexander Krämer, MD, PhD (University of Bielefeld)
- Jürgen Kropp, PhD (Potsdam Institute for Climate Impact Research)
- Tobia Lakes, PhD (Humboldt-Universität zu Berlin)
- Dietrich Plaß, M.Sc. (University of Bielefeld)
- Luise Prüfer-Krämer, MD, PhD (Institute for Innovation Transfer at the University of Bielefeld GmbH)

Aim

The course focuses on spatial analysis and statistical modelling in the context of urban health in megacities of developing countries. Topics covered in the seminar are focusing on health and the environment in megacities, such as burden of disease, socio-ecological health determinants, as well as climate change. The aim is to combine theoretical and lab work on statistical analysis and spatial-epidemiological modelling techniques in a transdisciplinary approach.

Learning objectives

After completing the course, our participants will be able:

- to understand the multidisciplinary of health problems in megacities of developing countries
- to approach concepts of population projection, epidemiological and demographical transitions
- to apply statistical techniques (i.e. multivariate regression analysis) which are commonly used in health sciences
- to apply geospatial techniques (i.e. geoprocessing, spatial auto-correlation analysis, and mapping) which are commonly used in geography
- to apply spatial-epidemiological modelling techniques (multivariate regression models that control for spatial dependencies in the data) which are commonly used in studies on health and the environment (spatial epidemiology, health geography)
- to work more effectively in collaboration with other disciplines for investigating multidisciplinary problems to develop sustainable strategies for the improvement of living conditions in megacities

September 3-7, 2012

Monday, September 3, 2012

Introduction, study designs, methods, health statistics

08.30 – 09.00	Registration, welcome and introduction (Krämer) (Common session)
09.00 – 10.30	Challenges for infectious disease epidemiology in a global world characterised by increasing urbanisation and climate change (Krämer) (Common session)
10.30 – 11.00	<i>Coffee break</i>
11.00 – 12.30	The geographies of health: Key questions in environmental health studies and examples (Gruebner)
12.30 – 13.30	<i>Lunch</i>
13.30 – 15.00	Study design I: Research methods in environmental health studies – study designs and outcome measures (Jahn)
15.00 – 15.15	<i>Coffee break</i>
15.15 – 16.30	Subgroups according to knowledge: Introduction to SPSS for data analysis and basic health statistics (basics) (Helmer)
15.15 – 16.30	Introduction to SPSS for data analysis and basic health statistics (advanced) (Khan)
16.30 – 16.45	<i>Short break</i>
16.45 – 18.00	Subgroups according to knowledge: Computing I: Practical exercise for computing basic health statistics (basics) (Helmer)
16.45 – 18.00	Computing I: Practical exercise for computing basic health statistics (advanced) (Khan)
19.00	<i>Coming together</i>

Tuesday, September 4, 2012

Study designs, confounding and interpretation of epidemiological findings: disease and exposure analysis

09.00 – 10:30	Study design II: Bias, confounding and interpretation of epidemiological findings (Khan) (Common session)
10.30 – 11.00	<i>Coffee break</i>
11.00 – 12.30	Remote sensing and spatial data analysis for health studies (Lakes) (Common Session)
12.30 – 13.30	<i>Lunch</i>
13.30 – 15.00	Computing II: Individual/group analysis of health data/statistical modelling (Khan)
15.00 – 15.15	<i>Coffee break</i>
15.15 – 16.45	Computing III: Geoprocessing with GIS (Gruebner)
16.45 – 17.00	<i>Short break</i>
17.00 – 17.30	Computing III: Geoprocessing with GIS (Gruebner)
17.30 – 18.00	Group work: discussing and choosing topics (Gruebner, Khan, Krämer, Lakes)

Wednesday, September 5, 2012

Climate impact in megacities, emerging infections, spatial-epidemiological modelling

09.00 – 10.30	Climate impact and other environmental stressors (Kropp) (common session)
10.30 – 11.00	<i>Coffee break</i>
11.00 – 12.30	Climate change and emerging infectious diseases (Prüfer-Krämer) (Common session)
12.30 – 13.30	<i>Lunch</i>
13.30 – 15.00	Spatial-epidemiological analysis and modelling: What do we know, where do we go? (Höhle)
15.00 – 15.15	<i>Coffee break</i>
15.15 – 16.45	Computing IV: Spatial cluster analysis (Kauhl)
16.45 – 17.00	<i>Short break</i>
17.00 – 18.00	Computing V: Bivariate spatial-epidemiological modelling (Gruebner)

Thursday, September 6, 2012

Burden of Disease methodology, practical exercises

09.00 – 10.30	Measuring overall health in megacities: The Burden of Disease methodology as a potential approach (Platz)
10.30 – 11.00	<i>Coffee break</i>
11.00 – 12.30	Climate change effects on vector-borne diseases in Europe - a spatio-temporal modelling approach (Fischer)
12.30 – 13.30	<i>Lunch</i>
13.30 – 15.00	Group work / analysis (Gruebner, Khan)
15.00 – 15.15	<i>Coffee break</i>
15.15 – 17.30	Group work / preparation of the presentation (Gruebner, Khan)
19.00	<i>Coming together</i>

Friday, September 7, 2012

Practical examples, group presentations, closing

09.00 – 10.30	Global epidemiology and challenges of HIV/AIDS (Finkbeiner) (Common session)
10.30 – 11.00	<i>Coffee break</i>
11.00 – 12.30	Early-warning surveillance based on emergency data (Krafft) (Common session)
12.30 – 13.30	<i>Lunch</i>
13.30 – 15.30	Presentations of the participants (Krämer, Prüfer-Krämer, Gruebner, Khan) (Common session)
15.30	<i>Closing session</i>