

10th International Summer School 2018

Spatial Epidemiology, Social Media, and Urban Health

September 17-21, 2018

Program Directors:

Dr. Oliver Gruebner,

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Prof. Dr. Sven Lautenbach

University of Heidelberg, Germany

Location

Humboldt-Universität zu Berlin

Geography Department

Rudower Chaussee 16

12489 Berlin, Germany

Rooms: 1'206 / 1'231

<https://hu.berlin/spatialepidemiology>

List of lecturers

- Florian Fischer, PhD (University of Bielefeld)
- Oliver Gruebner, Dr. rer. nat. (Humboldt-Universität zu Berlin, University of Zürich, CH)
- Mobarak Hossain Khan, PhD (East West University, Dhaka, Bangladesh)
- Alexander Krämer, MD, PhD (University of Bielefeld)
- Sven Lautenbach, PhD (University of Heidelberg)
- Sarah R. Lowe, PhD (Montclair State University, New York University, USA)

Date: September 17-21, 2018

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Humboldt-Universität zu Berlin
Geography Department
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12489 Berlin, Germany
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Course language

English

Course fees

Students and PhD candidates: EUR 400
Others: EUR 600

3 ECTS

Application

<https://hu.berlin/spatialepidemiology>

Audience

The course is designed for researchers, public health professionals, epidemiologists, geographers, and clinicians familiar with solid knowledge of epidemiologic principles, and multivariable modeling.

Aims

The course addresses spatial epidemiological approaches to social media data with a focus on urban health. We concentrate on state-of-the-art multivariable statistical and spatial statistical modeling to health outcomes as identified in geo-located Twitter data and associations with socio-ecological factors of urban contexts.

We combine theoretical and lab work on statistical analysis and spatial-epidemiological modeling techniques in an interdisciplinary approach.

The summer school Spatial Epidemiology and Urban Health is attracting participants due to its interdisciplinary character. Combining the scientific approaches of the discipline of geography with its genuine focus on space with those of epidemiology, biostatistics and the public health sciences makes it possible and fruitful for the participants to deal with spatial dimensions of health. Some of

the summer school faculty has long-lasting cooperation demonstrated by joint publications in the field of urban and megacity health.

Participants will be working with the statistical software R (<http://www.r-project.org>).

Basic knowledge in epidemiology and familiarity with R statistical software are prerequisites. For preparation you may consider taking a free online course to learn the concepts of epidemiology or R. Examples: <https://www.coursera.org/learn/epidemiology>, <https://www.coursera.org/learn/r-programming>

Learning objectives

After completing the course, participants will be able to:

- Review concepts of spatial epidemiology, urban health, and social media analytics
- Analyze health outcomes of urban populations by applying:
 - Geo-processing (e.g., integrating geo-spatial social media information)
 - Spatial clustering and mapping (e.g., hotspot analysis)
 - Spatial statistics (e.g., spatial regression)
- Work more effectively in collaboration with other disciplines for investigating multidisciplinary health problems.

Program September 17-21, 2018

Monday, September 17, 2018

Introduction, concepts

08.30 – 8.45	Registration
08.45 – 09.00	Welcome and introduction (Gruebner)
09.00 – 10.30	Urban health: Concepts and recent challenges (Krämer)
10.30 – 11.00	<i>Coffee break</i>
11.00 – 12.30	Epidemiological challenges and opportunities to urban mental health (Khan)
12.30 – 13.30	<i>Lunch</i>
13.30 – 15.00	Urban mental health in the context of disaster (Lowe)
15.00 – 15.30	<i>Coffee break</i>
15.30 – 17.00	World café: Social media for urban mental health analyses (Fischer)
17.30	<i>Coming together</i>

Tuesday, September 18, 2018

Descriptive statistics and mapping of social media in R

09.00 – 10.30	Towards a digital and spatial epidemiology (Gruebner)
10.30 – 11.00	<i>Coffee break</i>
11.00 – 12.30	Descriptive statistics for social media data in R (Gruebner)
12.30 – 13.30	<i>Lunch</i>
13.30 – 15.00	Geo-processing and mapping in R (Gruebner)
15.00 – 15.30	<i>Coffee break</i>
15.30 – 17.00	Group work exercise in R (Gruebner)

Wednesday, September 19, 2018

Explorative spatial data analysis (ESDA) and hotspot analysis in R

- 09.00 – 10.30 Explorative spatial data analysis (ESDA) in R (**Lautenbach**)
- 10.30 – 11.00 *Coffee break*
- 11.00 – 12.30 Group work exercise in R (**Lautenbach**)

- 12.30 – 13.30 *Lunch*
- 13.30 – 15.00 Spatial cluster analysis in R (**Lautenbach**)
- 15.00 – 15.30 *Coffee break*
- 15.30 – 17.00 Group work exercise in R (**Lautenbach**)

Thursday, September 20, 2018

Spatial regression modeling in R

- 09.00 – 10.30 Spatial Regression analysis in R (**Lautenbach**)
- 10.30 – 11.00 *Coffee break*
- 11.00 – 12.30 Group work exercise in R (**Lautenbach**)

- 12.30 – 13.30 *Lunch*
- 13.30 – 15.00 Group work exercise in R (**Lautenbach, Gruebner**)
- 15.00 – 15.30 *Coffee break*
- 15.30 – 17.00 Group work exercise in R (**Lautenbach, Gruebner**)
- 18.00 *Coming together*

Friday, September 21, 2018

Group presentations, closing

- 09.00 – 10.30 Presentations of the participants (**Gruebner, Lautenbach**)
- 10.30 – 11.00 *Coffee break*
- 11.00 – 12.30 Presentations of the participants (**Gruebner, Lautenbach**)
- 12.30 – 13.00 *Closing session*