



Lecturer

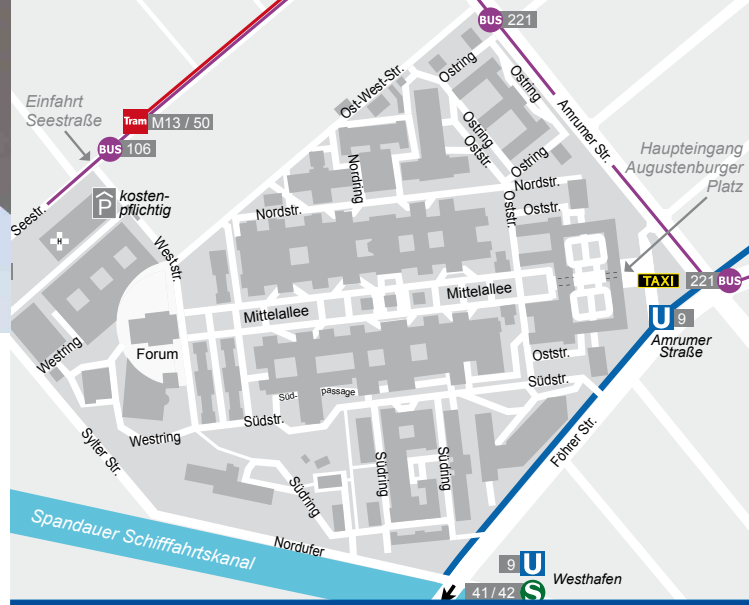
Professor Matthew Fox, DSc

Boston University, School of Public Health, Department of Global Health & Epidemiology

Biographical Sketch

Matthew Fox, DSc, MPH, is a Professor in the Departments of Global Health and Epidemiology at Boston University. Dr. Fox joined Boston University in 2001. Before joining Boston University, he was a Peace Corps volunteer in the former Soviet Republic of Turkmenistan. His research interests include treatment outcomes in HIV-treatment programs, infectious disease epidemiology (with specific interests in HIV and pneumonia), and epidemiologic methods. Dr. Fox works on ways to improve retention in HIV-care programs in South Africa from the time of testing HIV-positive through long-term treatment. As part of this work, he is involved in analyses of whether treating patients at higher CD4 counts leads to improved long-term retention and treatment outcomes. Dr. Fox also does research on quantitative sensitivity analysis and recently co-authored a book on these methods, *Applying Quantitative Bias Analysis to Epidemiologic Data*.

He currently teaches a third-level epidemiologic methods class, Advanced Epidemiology as well as two other doctoral level epidemiologic methods courses. Dr. Fox is a graduate of the Boston University School of Public Health with a master's degree in epidemiology and biostatistics and a doctorate in epidemiology.



Institute of Public Health

Summer School Advanced Epidemiologic Methods

7th - 11th August, 2017, 9:00 - 17:00

INTENSIVE SHORT COURSE

Institute of Public Health

Prof. Dr. Dr. Tobias Kurth, Director

Venue

Charité - Universitätsmedizin Berlin | Campus Virchow-Klinikum
Augustenburger Platz 1 | 13353 Berlin

Course Information

Language English
ECTS 3
Course fees 360 € for students
450 € other participants

Registration Information

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Payment of the course fee ensures participation.

Further information about IPH: <http://iph.charite.de>

Design: Christine Voigtls. Fotos: Wiebke Peitz, Zentrale Medienstleistungen, Charité - Universitätsmedizin Berlin



Course Description and Learning Objectives

The intent of this intensive short course is to strengthen the methodological skills of the research community.

At the end of the week participants should be able to:

- Use the sufficient cause model, counterfactual susceptibility type model, and a causal graph to assist with the design or analysis of an epidemiologic study.
- Calculate adjusted measures of effect and select those that, when collapsible, correspond to the no-confounding condition. Use the adjusted measures of effect to estimate the direction and magnitude of confounding.
- Distinguish effect measure modification, interdependence, and statistical interaction from one another as separate - but related - concepts of interaction.
- Identify the likely magnitude and direction of bias due to misclassification of exposure, outcomes, confounders and modifiers.
- Weigh the advantages and disadvantages of significance testing.
- Compare the advantages and disadvantages of frequentist and Bayesian approaches to analysis of a single study, to evidence, and to changing your mind.

Course Outline

Monday, August 7

Morning

INTRODUCTION TO MODERN EPIDEMIOLOGY:

- Review of basic epidemiology and introduction to advanced epidemiologic concepts.

Afternoon

THE SUFFICIENT CAUSE MODEL:

- Introduction to causal models and the benefits of basis of causal thinking.

Tuesday, August 8

Morning

THE POTENTIAL OUTCOMES MODEL:

- Confounded definitions of confounding.

Afternoon

STRUCTURAL APPROACHES TO BIAS:

- Directed Acyclic Graphs and the potential harms of statistical adjustment.

Wednesday, August 9

Morning

NOVEL APPROACHES TO DEALING WITH CONFOUNDING:

- Propensity Scores and Marginal Structural Models.

Afternoon

THREE CONCEPTS OF INTERACTION:

- What do we really mean by 'interaction'?

Thursday, August 10

Morning

BEYOND "NONDIFFERENTIAL MISCLASSIFICATION BIASES TOWARD THE NULL":

- Information bias.

Afternoon

THE ABUSED P-VALUE:

- Random Error I: What's in a p-value?

Friday, August 11

Morning

A SHOW OF CONFIDENCE:

- Random Error II: P-values or confidence intervals? An introduction to Bayesian thinking.

Ends at 13:00

Audience

The course is designed for researchers, public health professionals, epidemiologists and clinicians familiar with advanced epidemiologic knowledge, algebra, and statistical computing.

Course Pre-requisites

A course in introductory epidemiology and biostatistics. Courses in intermediate epidemiology and biostatistics are strongly recommended.

Course Materials

Rothman KJ, Greenland S, Lash TL.: Modern Epidemiology. 3rd Edition. Lippincott-Raven, Philadelphia, 2008