

## Statistical Methods for Epidemiology

### Description

This short course reviews the foundations of statistical methods for epidemiology, beginning with a brief introduction to probability theory and description of probability distributions that function well for analysis of epidemiologic data. The course progresses to a discussion of tools used to characterize the precision of epidemiologic results: p-values, significance testing, confidence intervals, likelihoods, and p-value functions. The second day compares and contrasts Bayesian methods with frequentist methods, and concludes with the topic of bias analysis and a brief discussion separating causal inference from statistical inference.

### Objectives

By the end of the course, participants will have gained an understanding of the foundations of statistical methods and statistical inference applied to epidemiologic data.

### Dates

**January 14 and 15, 2013**

### Eligibility

This is an advanced epidemiology course. Basic knowledge of epidemiologic research and data analysis are required. Some reading material will be made available in advance.

### Course Structure

This two-day course will use interactive lectures and some group work. Lecture slides, speaker notes, and readings will be assigned in advance. Preparatory reading of 6-8 hours is required. A reading guide will help students to identify the most important points in the assigned readings. There will be six hours of instruction each day, and additional student work of 1-2 hours a day. The specific titles of each session are:

Lecture 1: Probability distributions and p-values (Mo Morning, 14<sup>th</sup> Jan)

Lecture 2: p-values, p-value functions, intervals and likelihoods (Mo Afternoon, 14<sup>th</sup> Jan)

Lecture 3: Frequentists and Bayesians (Tue Morning, 15<sup>th</sup> Jan)

Lecture 4: Bias analysis and causal inference (Tue Afternoon, 15<sup>th</sup> Jan)

### Assessment

A quiz will be completed by students enrolled for credit after lunch on the second day.

### PhD Program Management:

Academic Lead Prof. Charlotte Braun-Fahrländer  
Program Coordination Dr. Sina Henrichs

### Contact:

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<b>Credits</b>	<p><b>1 ECTS</b></p> <p>Preliminary Work: 8 h, Contact: 16 h, Wrap-Up Work: 2 h</p> <p>1 ECTS corresponds to appr. 30 hours workload</p>								
<b>Facilitators</b>	<p>Professor Timothy L. Lash, Aarhus University Hospital &amp; Wake Forest University</p>								
<b>Location</b>	<p>Institute of Social and Preventive Medicine (ISPM) at the University of Bern, Finkenhubelweg 11, 3012 Bern, Room: tba</p>								
<b>Course Fees</b>	<table border="0"> <tr> <td>SSPH+ PhD Students</td> <td style="text-align: right;">0.—</td> </tr> <tr> <td>External MD/PhD Students</td> <td style="text-align: right;">300.—</td> </tr> <tr> <td>External Academics</td> <td style="text-align: right;">850.—</td> </tr> <tr> <td>Others</td> <td style="text-align: right;">1250.—</td> </tr> </table> <p>(The cost scheme depends on the Number of ECTS. Per ECTS participants are asked to pay 300,- CHF, 850,- CHF or 1250,-CHF, respectively)</p>	SSPH+ PhD Students	0.—	External MD/PhD Students	300.—	External Academics	850.—	Others	1250.—
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<b>Registration</b>	<p><u>Please register online on our homepage</u></p> <p>Or send an Email to <a href="mailto:phdph@ssphplus.ch">phdph@ssphplus.ch</a></p>								
<b>Deadline</b>	<p><b>December 14, 2012</b></p>								
<b>Max. Attendance</b>	<p><b>12</b></p> <p>(preference is given to SSPH+ PhD Students)</p>								

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