I wish to participate in the 4-day course (please fill in legibly or send an e-mail with the required information)

Registration Form
4th RUHR- School of Modern Epidemiology

First name

Last name

Title

Institution

Address

Invoice address

Email

Phone

If applicable, please enclose proof of your student status.

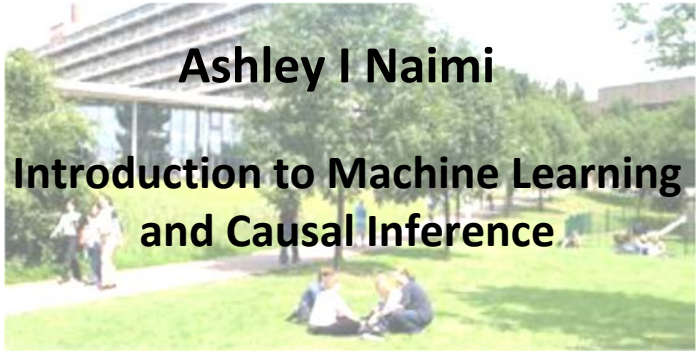
Cancellation of registration:
Cancellations with full refund are only possible until 1 June 2022. From 2 June to 14 June 2022 we retain 50% of the fee. From 15 June 2022 we will retain the complete fee.

Please fax to: +49-201-723-77-333 or send to
E-mail: IMIBE-summerschool@uk-essen.de

This year's RUHR School of Modern Epidemiology will take place online from June 21, 2022 to June 24, 2022 from 2 pm to 5:30 pm CEST each day. Access links to the events will be distributed by email on Friday, June 17, 2022 to those who have pre-registered.

Invitation

4th RUHR-School of Modern Epidemiology
21.06.2022-24.06.2022



Ashley I Naimi

Introduction to Machine Learning and Causal Inference

UNIVERSITÄT DUISBURG ESSEN
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PhD in Epidemiology and Clinical Research

Universitätsmedizin Essen
Universitätsklinikum
Institut für Medizinische Informatik, Biometrie und Epidemiologie (IMIBE)

Introduction to Machine Learning and Causal Inference

June 21 – June 24, 2022

Introduction

Ashley I Naimi is Associate Professor in the Department of Epidemiology at the Rollins School of Public Health, Emory University. His research focuses on the development, evaluation, and application of machine learning and causal inference methods to observational and experimental data.

His NIH funded research has focused on developing and implementing methods to (i) estimate compliance adjusted effects of daily low-dose aspirin on reproductive outcomes, and (ii) model complex synergistic effects of diet on pregnancy outcomes. He currently teaches intermediate and advanced methods topics for graduate students at Emory University.

Course Outline

Course Objectives

This course will serve as an introduction to the methods and concepts of modern causal inference. We will also cover why, when, and how to use machine learning methods to estimate causal effects. We will introduce problems with using standard regression methods and challenges in using machine learning algorithms, to estimate causal effects in observational data. We will then provide a hands-on introduction to machine learning methods, and how they can be properly used to estimate causal effects.

Main topics and methods

- Introduction to causal inference
- Review of basic regression methods
- G Methods and Double Robust Methods
    - G computation
    - IP-weighting
    - Double Robust Estimation
- Introduction to Machine Learning
    - Neural Networks
    - Gradient Boosting
    - Random Forest
    - Support Vector Machines
    - Stacked Generalization (Super Learner)
- Tying it all together

Statistical Experience and Software

We will use the R programming language, as well as the RStudio IDE to illustrate how to implement the methods covered in this course.

Course fees:

Applicants not from Universities:	500 €
Applicants from Universities:	300 €
Students*:	100 €

* first-degree students in bachelor's or master's degree programmes or in a state examination programme

Application deadline:
Monday June 6, 2022, 12:00 am

Time Course:

Tuesday	June 21, 2022	02:00 pm – 05:15 pm
Wednesday	June 22, 2022	02:00 pm – 05:15 pm
Thursday	June 23, 2022	02:00 pm – 05:15 pm
Friday	June 24, 2022	02:00 pm – 05:15 pm

Program Director:
Prof. Dr. med. Andreas Stang, MPH,
Head of the Institute of Medical Informatics, Biometry and Epidemiology (IMIBE)
University Hospital Essen

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Information online: https://imibe.uk-essen.de/lehre/ruhr-school/

Course language: English