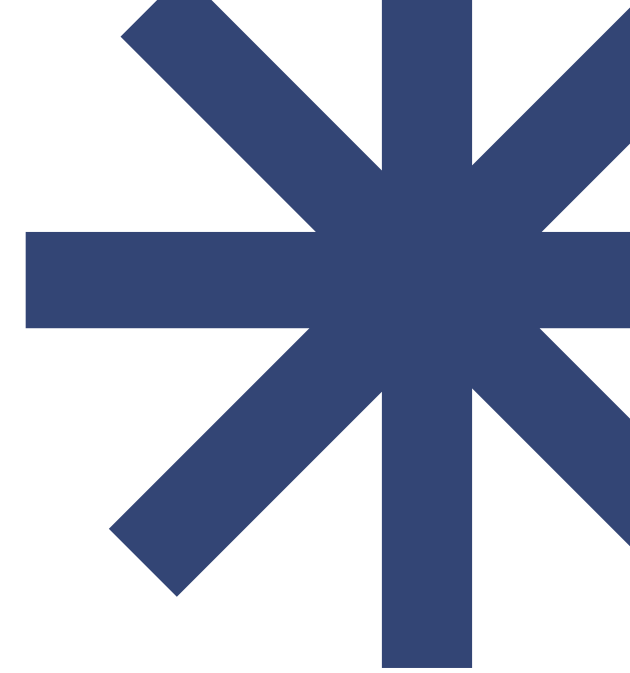




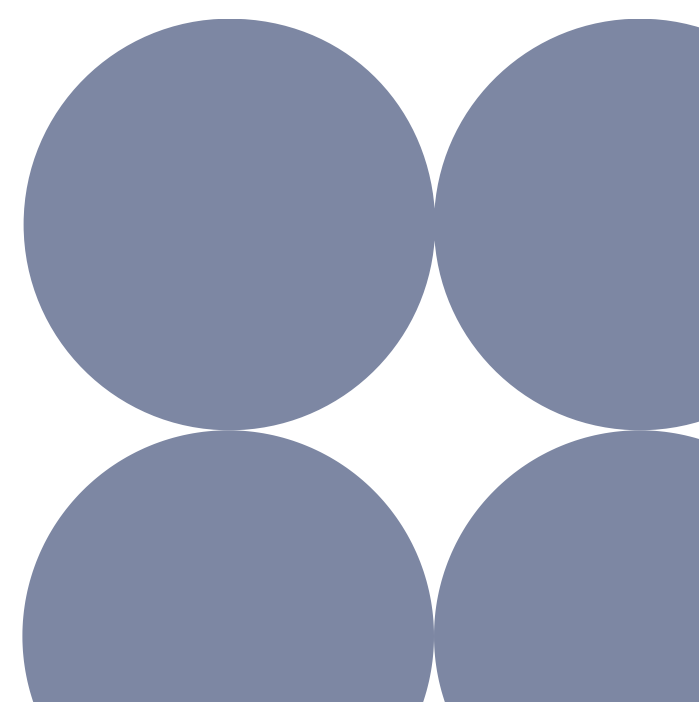
October 23rd & 24th, 2025

ADVANCED QUANTITATIVE METHODS AND ANALYTICS FOR PUBLIC POLICY SUPPORT (AQMAPPS)

The third workshop on “Advanced Quantitative Methods and Analytics for Public Policy Support” (AQMAPPS) aims to improve public policy through advanced data modeling techniques, following the previous editions in Milan (2023) and Amsterdam (2024). The workshop builds on a collaboration of educational scientists and organized by Teachers College, Columbia University (USA), Vrije Universiteit Amsterdam (the Netherlands), Politecnico di Milano (Italy), and KU Leuven (Belgium).



Teachers College
COLUMBIA UNIVERSITY





AQM APPS 2025

October 23rd & 24th, 2025
Teachers College,
Columbia University

THURSDAY OCTOBER 23, 2025

08:00 to 09:15

■ **REGISTRATION & LIGHT BREAKFAST**

Location: Grace Dodge Hall 177, Teachers College

Time: 08:00 to 09:00

■ **OPENING**

Location: Grace Dodge Hall 179, Teachers College

Time: 09:00 to 09:15

With Dr. Alex Bowers, Professor of Education Leadership at Teachers College, Columbia University

09:15 to 10:00

■ **SESSION 01**

Location: Grace Dodge Hall 179, Teachers College

Time: 09:15 to 10:00

Discussant: Gabriele Iannotta, Politecnico di Milano

*THE IMPACT OF AI-SUPPORTED LEARNING ON FINANCIAL LITERACY: EVIDENCE FROM
A RANDOMIZED CONTROLLED TRIAL*

Jaime Polanco-Jiménez, KU Leuven & Pontificia Universidad Javeriana

Kristof De Witte, KU Leuven

■ **SESSION 02**

Location: Zankel 109, Teachers College

Time: 09:15 to 10:00

Discussant: Qi An, The University of Hong Kong

*CULTURAL TOURISM IN SECOND-TIER CITIES: THE IMPACT OF THE ITALIANS CAPITAL OF
CULTURE*

Claudia Rizzuti, Politecnico di Milano

Romain Lerouge, Politecnico di Milano

Michela Arnaboldi, Politecnico di Milano



AQMAPPS 2025

October 23rd & 24th, 2025
Teachers College,
Columbia University

THURSDAY OCTOBER 23, 2025

10:00 to 10:45

■ **SESSION 03**

Location: Grace Dodge Hall 179, Teachers College

Time: 10:00 to 10:45

Discussant: Christian Andersson, Blekinge Institute of Technology

*INFORMING POLICY WITH DATA: A LOGISTIC REGRESSION ANALYSIS OF
INSTRUCTIONAL SETTING AND STUDENT OUTCOMES IN URBAN COLLEGE ALGEBRA
DUAL ENROLLMENT*

Cynthia A. Gallardo, Texas A&M International University

■ **SESSION 04**

Location: Zankel 109, Teachers College

Time: 10:00 to 10:45

Discussant: Chenguang Pan, Teachers College, Columbia University

EARLY PREDICTION OF LABOR FORCE DROPOUT OF PEOPLE WITH VISUAL IMPAIRMENTS

Katharina Diehl, Vrije Universiteit Amsterdam

Ilja Cornelisz, Vrije Universiteit Amsterdam – ACLA

Eline Heppe, Vrije Universiteit Amsterdam

Tommaso Agasisti, Politecnico di Milano School of Management

Chris van Klaveren, Vrije Universiteit Amsterdam

10:45 to 11:00

■ **BREAK**

Location: Grace Dodge Hall 177, Teachers College

Time: 10:45 to 11:00



AQMAPPS 2025

October 23rd & 24th, 2025
Teachers College,
Columbia University

THURSDAY OCTOBER 23, 2025

11:00 to 12:00

■ **KEYNOTE**

Location: Grace Dodge Hall 179, Teachers College

Time: 11:00 to 12:00

TOWARDS CASUAL ARTIFICIAL INTELLIGENCE

Elias Bareinboim; Associate Professor in Department of Computer Science and director of the Casual Artificial Intelligence (CasualAI) Laboratory at Columbia University

Abstract: While a significant portion of AI scientists and engineers believe we are on the verge of achieving highly general forms of AI, I offer a critical appraisal of this view through a causal lens. In particular, building on foundational developments in the field, I will present my perspective on the relationship between intelligence and causality — and the central role of the latter in building intelligent systems and advancing credible data science.

I frame this discussion in terms of five core capabilities that we should expect from an intelligent AI system:

1. Performing causal reasoning and articulating explanations;
2. Making precise, surgical, and sample-efficient decisions;
3. Generalizing across changing conditions and environments;
4. Generating and simulating in a causally consistent manner; and
5. Learning causal structures and variables.

In this talk, I will elaborate on this perspective and share current progress toward building causally intelligent AI systems. A more detailed discussion of this thesis is provided in my forthcoming textbook, a draft of which is available here: <https://causalai-book.net/>.



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THURSDAY OCTOBER 23, 2025

Bio: Elias Bareinboim is an associate professor in the Department of Computer Science and the director of the Causal Artificial Intelligence (CausalAI) Laboratory at Columbia University. His research focuses on causal and counterfactual inference and their applications to artificial intelligence, machine learning, and data science in biomedical and social domains. In particular, Bareinboim is a leading proponent and driving force behind the causal-based approach to AI, which he argues is essential for achieving more general forms of AI and capabilities such as decision-making (including reinforcement learning), explainability (including fairness analysis), and generalizability. His scientific contributions include the first general solution to the problem of 'data fusion,' providing practical methods for combining data generated under different experimental conditions and affected by various biases. Bareinboim currently serves as the editor-in-chief of the Journal of Causal Inference (JCI), the first journal dedicated to causal inference research, and as an action editor of the Journal of Machine Learning Research (JMLR), the premier journal focused on machine learning. He received his Ph.D. from the University of California, Los Angeles, where he was advised by Professor Judea Pearl. Recognized by IEEE as one of 'AI's 10 to Watch', Bareinboim has also received several awards, including the NSF CAREER Award, ONR Young Investigator Award, DARPA Young Faculty Award, Dan David Prize Scholarship, the 2014 AAAI Outstanding Paper Award, and the 2019 UAI Best Paper Award. His research has been funded by grants and gifts from public agencies and private institutions, including the NSF, ONR, AFOSR, DARPA, the DoE, NIH, Amazon, JP Morgan, and the Alfred P. Sloan Foundation.



AQMAPPS 2025

October 23rd & 24th, 2025
Teachers College,
Columbia University

THURSDAY OCTOBER 23, 2025

12:00 to 13:00

■ LUNCH

Location: Grace Dodge Hall 177, 277, & 281, Teachers College*

Time: 12:00 to 13:00

**Lunch pickup in GDH 177, sit down lunch rooms are GDH 277 & 281*

13:15 to 14:00

■ SESSION 05

Location: Grace Dodge Hall 179, Teachers College

Time: 13:15 to 14:00

Discussant: Cynthia Gallardo, Texas A&M International University

FROM POWER TO PLATEAU: LEVERAGING EFFECT SHAPE AND STABILITY FOR LONG-TERM AND DIFFERENTIAL INFERENCE

Lidia Rossi, Politecnico di Milano

Ilja Cornelisz, Vrije Universiteit Amsterdam - ACLA

Tommaso Agasisti, Politecnico di Milano School of Management

Chris van Klaveren, Vrije Universiteit Amsterdam

14:00 to 14:45

■ SESSION 06

Location: Grace Dodge Hall 179, Teachers College

Time: 14:00 to 14:45

Discussant: Brooks Bowden, University of Pennsylvania

ADVANCING QUANTITATIVE METHODS FOR SMARTER, DATA-DRIVEN PUBLIC POLICY

Jesse Levin, The American Institutes for Research (AIR)

Bruce Baker, University of Miami



AQMAPPS 2025

October 23rd & 24th, 2025
Teachers College,
Columbia University

THURSDAY OCTOBER 23, 2025

14:45 to 15:00

■ **BREAK**

Location: Grace Dodge Hall 177, Teachers College

Time: 14:45 to 15:00

15:00 to 15:45

■ **SESSION 07**

Location: Grace Dodge Hall 179, Teachers College

Time: 15:00 to 15:45

Discussant: Ilja Cornelisz, Vrije Universiteit Amsterdam – ACLA

*(DE)EFFICIENCY OF ITALIAN UNIVERSITIES: A COMPARATIVE ANALYSIS OF PUBLIC,
PRIVATE, AND ONLINE INSTITUTIONS*

Tommaso Agasisti, Politecnico di Milano School of Management

Gaetano Francesco Coppeta, Politecnico di Milano

15:45 to 16:30

■ **SESSION 08**

Location: Grace Dodge Hall 179, Teachers College

Time: 15:45 to 16:30

Discussant: Chris van Klaveren, Vrije Universiteit Amsterdam

*REPRESENTING POSTSECONDARY EDUCATION ACADEMIC FIELDS OF STUDY IN POLICY
ANALYSIS: AN EVALUATION OF ENGINEERED AND LEARNED EMBEDDING PROCEDURES
FOR DENSE REPRESENTATION OF CLASSIFICATION OF INSTRUCTIONAL PROGRAMS
(CIP) CODES*

Cesar Vazquez, University of Texas El Paso

Amy Wagler, University of Texas El Paso

Anne-Marie Núñez, University of Texas El Paso

John Garza, University of Texas El Paso

Azuri Gonzalez, University of Texas El Paso



AQMAPPS 2025

October 23rd & 24th, 2025
Teachers College,
Columbia University

THURSDAY OCTOBER 23, 2025

16:30 to 17:15

■ **SESSION 09**

Location: Grace Dodge Hall 179, Teachers College

Time: 16:30 to 17:15

Discussant: Tommaso Agasisti, Politecnico di Milano School of Management

*NOT JUST EITHER PRINCIPALS OR TEACHERS: RESPONSE SURFACE METHODOLOGY
TO EXPLORE THE JOINT EFFECT OF DISTRIBUTED LEADERSHIP ON TEACHER
SATISFACTION*

Soobin Choi, The Education University of Hong Kong

Alex Bowers, Teachers College, Columbia University

18:00 to 20:00

■ **DINNER**

Location: Pisticci's

Time: 18:00 to 20:00

Address: 125 La Salle St, New York, NY 10027

■ **END OF DAY 1** ■



AQM APPS 2025

October 23rd & 24th, 2025
Teachers College,
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FRIDAY OCTOBER 24, 2025

08:00 to 09:15

■ **REGISTRATION & LIGHT BREAKFAST**

Location: Grace Dodge Hall 177, Teachers College

Time: 08:00 to 09:00

■ **OPENING**

Location: Grace Dodge Hall 179, Teachers College

Time: 09:00 to 09:15

With Dr. Alex Bowers, Professor of Education Leadership at Teachers College, Columbia University

09:15 to 10:00

■ **SESSION 10**

Location: Grace Dodge Hall 179, Teachers College

Time: 09:15 to 10:00

Discussant: Peter Spoelstra, Maastricht University

TWO DECADES OF COMPULSORY SCHOOL EFFICIENCY IN THE EU27: A CROSS-COUNTRY COMPARATIVE ANALYSIS

Giovanni Antonini, Politecnico di Milano

Tommaso Agasisti, Politecnico di Milano School of Management

■ **SESSION 11**

Location: Zankel 109, Teachers College

Time: 09:15 to 10:00

Discussant: Kristof De Witte, KU Leuven

INVESTIGATING INTERPRETABLE OPTIMAL TREATMENT REGIMES USING KOLMOGOROV-ARNOLD NETWORKS

Chenguang Pan, Teachers College, Columbia University

Yuxuan Li, Teachers College, Columbia University

Youmi Suk, Teachers College, Columbia University



AQM APPS 2025

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Teachers College,
Columbia University

FRIDAY OCTOBER 24, 2025

10:00 to 10:45

■ **SESSION 12**

Location: Grace Dodge Hall 179, Teachers College

Time: 10:00 to 10:45

Discussant: Ilja Cornelisz, Vrije Universiteit Amsterdam – ACLA

POP-UP FICTION: A TRADING APP SIMULATION TO BOOST FINANCIAL COMPETENCE

Gabriele Iannotta, Politecnico di Milano

Katharina Hartinger, Johannes Gutenberg Universität Mainz

Tommaso Agasisti, Politecnico di Milano School of Management

■ **SESSION 13**

Location: Zankel 109, Teachers College

Time: 10:00 to 10:45

Discussant: Soobin Choi, The Education University of Hong Kong

*IMPROVING FEASIBILITY OF OPTIMAL TREATMENT REGIMES FOR PERSONALIZED
EDUCATION*

Yuxuan Li, Teachers College, Columbia University

Chenguang Pan, Teachers College, Columbia University

Youmi Suk, Teachers College, Columbia University

10:45 to 11:00

■ **BREAK**

Location: Grace Dodge Hall 177, Teachers College

Time: 10:45 to 11:00



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FRIDAY OCTOBER 24, 2025

11:00 to 12:00

■ **KEYNOTE**

Location: Grace Dodge Hall 179, Teachers College

Time: 11:00 to 12:00

EDUCATION LEADERSHIP DATA ANALYTICS

Alex J. Bowers; Professor of Education Leadership, Teachers College, Columbia University;
Faculty Affiliate to the Columbia Data Science Institute; Director of the Education Leadership
Data Analytics Research Group

Abstract: In this session, Professor Alex J Bowers, Teachers College, Columbia University, will discuss his current work at the intersection of education leadership, evidence-based improvement cycles, and data science. This research focuses on integrating public open access education data across policy regions to align with the recent USA National Academy of Sciences, Engineering and Medicine's 16 education indicators for schools. In this talk Bowers will discuss recent research in education data science practices and visualization techniques for large-scale education datasets, data warehouses, and dashboards, arguing for the use and publication of public open access data and code for frictionless reproducibility. For more information on the Education Leadership Data Analytics research group:

<https://www.tc.columbia.edu/elda/>

Bio: Alex J. Bowers is a Professor of Education Leadership at Teachers College, Columbia University, where he works to help school leaders use the data that they already collect in schools in more effective ways to help direct the limited resources of schools and districts to specific student needs. His research focuses on the intersection of effective school and district leadership, organization and HR, data driven decision making, student grades and test scores, student persistence and dropouts. His work also considers the influence of school finance, facilities, and technology on student achievement. Professor Bowers studies these domains through the application of data science, and big data analytics, such as data visualization analytics, multilevel and growth mixture modeling, and cluster analysis heatmap data dashboards. He earned his Ph.D. in K12 Educational Administration from Michigan State University, and previous to teaching and education research, spent a decade as a cancer researcher in the biotechnology industry, with a M.S. in Biochemistry, Microbiology and Molecular Biology, and a B.S. in Biochemistry.



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Columbia University

FRIDAY OCTOBER 24, 2025

12:00 to 13:00

■ LUNCH

Location: Grace Dodge Hall 177, 277, & 281, Teachers College*

Time: 12:00 to 13:00

**Lunch pickup in GDH 177, sit down lunch rooms are GDH 277 & 281*

12:00 to 13:00

■ SESSION 14

Location: Grace Dodge Hall 179, Teachers College

Time: 13:15 to 14:00

Discussant: Mara Soncin, Politecnico di Milano

DOES A REDUCTION IN TEACHER EDUCATION TUITION FEES REDUCE TEACHER SHORTAGES?

Peter Spoelstra, Maastricht University

Tom Stolp, Maastricht University

Ilja Cornelisz, Vrije Universiteit Amsterdam – ACLA

Chris van Klaveren, Vrije Universiteit Amsterdam

Bart Golsteyn, Maastricht University

■ SESSION 15

Location: Zankel 109, Teachers College

Time: 13:15 to 14:00

Discussant: Katharina Diehl, Vrije Universiteit Amsterdam

THE VALUE OF MOBILITY IN THE DIGITAL ERA: A QUANTITATIVE ANALYSIS AT AN ITALIAN TECHNICAL UNIVERSITY

Lidia Rossi, Politecnico di Milano

Antonio Panero, Politecnico di Milano

Tommaso Agasisti, Politecnico di Milano School of Management



AQMAPPS 2025

October 23rd & 24th, 2025
Teachers College,
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FRIDAY OCTOBER 24, 2025

14:00 to 14:45

■ SESSION 16

Location: Grace Dodge Hall 179, Teachers College

Time: 14:00 to 14:45

Discussant: Claudia Rizzuti, Politecnico di Milano

*ZOOM IN, ZOOM OUT: EVALUATING PERFORMANCE OF EDUCATION IN EUROPE
FROM THE SUBNATIONAL, NATIONAL AND SUPRANATIONAL PERSPECTIVES*

Dovilė Stumbrienė, Vytautas Magnus University

Jose Luis Ruiz Gomez, Universidad Miguel Hernandez

Inmaculada Sirvent, Universidad Miguel Hernandez

■ SESSION 17

Location: Zankel 109, Teachers College

Time: 14:00 to 14:45

Discussant: Gaetano Francesco Coppeta, Politecnico di Milano

*ACADEMIC PERFORMANCE FOR DIFFERENT ADMISSION GROUPS IN THE SELECTION
TO HIGHER EDUCATION IN SWEDEN-SAT VS GRADES*

Christian Andersson, Blekinge Institute of Technology

14:45 to 15:00

■ BREAK

Location: Grace Dodge Hall 177, Teachers College

Time: 14:45 to 15:00



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Columbia University

FRIDAY OCTOBER 24, 2025

15:00 to 15:45

■ **SESSION 18**

Location: Grace Dodge Hall 179, Teachers College

Time: 15:00 to 15:45

Discussant: Dovilė Stumbrienė, Vytautas Magnus University

LEADING THROUGH TECHNOLOGY: THE ROLE OF SCHOOL PRINCIPALS' DIGITAL LEADERSHIP IN SHAPING EDUCATIONAL EFFICIENCY

Mara Soncin, Politecnico di Milano

Tommaso Agasisti, Politecnico di Milano School of Management

■ **SESSION 19**

Location: Zankel 109, Teachers College

Time: 15:00 to 15:45

Discussant: Giulia Vaiani, Politecnico di Milano

THE STRUCTURAL MODEL OF EDUCATIONAL ASPIRATIONS: MEDITATION EFFECTS OF FAMILY SES AND CULTURAL CAPITAL ON EDUCATIONAL ASPIRATIONS

Qi An, The University of Hong Kong

15:45 to 16:30

■ **SESSION 20**

Location: Grace Dodge Hall 179, Teachers College

Time: 15:45 to 16:30

Discussant: Jesse Levin, American Institutes for Research (AIR)

PROFILING ICT USE AND PERCEPTION IN EUROPEAN SCHOOLS: A TWO-LEVEL LATENT CLASS ANALYSIS

Giulia Vaiani, Politecnico di Milano

Mara Soncin, Politecnico di Milano

Tommaso Agasisti, Politecnico di Milano School of Management



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FRIDAY OCTOBER 24, 2025

16:30 to 16:45

■ **CONCLUSION**

Location: Grace Dodge Hall 179, Teachers College

Time: 16:30 to 16:45