

Hammad Shaikh

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Citizenship: Canadian**Research Interests:** Public, Behavioural, Applied Econometrics, and the Economics of Education**Teaching Interests:** Public, Education, Econometrics, and Programming for Economists

EDUCATION

PhD in Economics, University of Toronto 2022 (Expected)
Committee: Robert McMillan, Aloysius Siow, and Román Andrés Zárate

MA in Economics (Doctoral Stream), University of Toronto 2015

HBSc in Math and Economics, University of Toronto Mississauga 2014

RESEARCH

Improving Online Learning Through Course Design: A Microeconomic Approach
(Job Market Paper)

Provision of Online Public Goods: Evidence From Student Discussion Boards

Information Disclosure and Advanced Course Selection: A Field Experiment Involving High Achieving Freshmen Students, with Robert McMillan and Linda Wang

Understanding Gender Gaps in STEM, with Robert McMillan and Linda Wang

AWARDS AND GRANTS

Excellence in Teaching by a Economics Teaching Assistant 2020
Ontario Graduate Scholarship (\$15,000 × 2) 2019 - 2020
University of Toronto Doctoral Fellowship (\$12,000 × 5) 2015 - 2019

TEACHING AND RESEARCH ASSISTANT EXPERIENCE

Course Instructor, University of Toronto Mississauga

2017

- ECO411: Human Capital and Education in the Economy
 - Student Evaluation (n = 16): mean = 4.6/5 and median = 5/5
 - * Scale: 1 = Poor and 5 = Excellent

Teaching Assistant (Economics/Math/Computer Science)

2012 - present

- MAT133/134/1345: Calculus I (x4)
 - Nominated for U of T Teaching Excellence Award in 2013
- ECO220: Quantitative Methods in Economics (x8)
- ECO375: Applied Econometrics (x2)
- ECO502: Matlab and Stata Programming TA (x3)
- ECO1001: UTM Graduate Help Desk (x6)
- MAT102: Introduction to Mathematical Proofs
- MAT236: Calculus III
- MAT223: Linear Algebra
- CSC108: Introduction to Python Programming (x2)
- CSC2558: Designing Intelligent Self-Improving Systems

Research Assistant, University of Toronto

2014 - Present

- Project: Affirmative Action and Student Effort
 - Task: Empirical analysis in Stata
 - Supervisor: Dr. Natalie Bau
- Project: Incentive Design in Education: An Empirical Analysis
 - Task: Structural estimation in Matlab
 - Supervisor: Dr. Robert McMillan
- Project: A New Method for Computing Teacher Value Added
 - Task: Empirical analysis in Stata and simulations in R
 - Supervisor: Dr. Jiaying Gu

CONFERENCE AND SEMINAR PRESENTATIONS

Empirical Microeconomics, University of Toronto

Oct 2021

Graduate Students in Economics of Education Zoom Seminars, Online

March 2021

Educational Data Mining, Montreal

July 2019

ACADEMIC SERVICE

Departmental Chair Search Committee, Mississauga

2020

Graduate Student Mentor, Toronto

2017 - 2020

Board Games Event Coordinator, Toronto

2016 - 2019

First Year University Transition Mentor, Mississauga

2015

LANGUAGES

English (fluent), Urdu (fluent), and Hindi (intermediate)

Programming: Python, MATLAB, Stata, R, L^AT_EX, and Java Script

- Open source programming projects: <https://github.com/hammadshaikhha>

REFERENCES

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Abstracts

Improving Online Learning Through Course Design: A Microeconomic Approach (JMP)

Online education has expanded dramatically over the past two decades, yet significant learning challenges remain. In light of those challenges, this paper provides the first microeconomic analysis to examine how the quality of online university courses can be enhanced through course design, addressing the twin needs of providing individualized support to students and keeping them engaged with online coursework. First, I gather rich data covering over 3,500 undergraduates at a large public university taking an online introductory programming course with a cumulative structure. The data allow me to monitor students' study time precisely and to characterize important dimensions of heterogeneity: student attentiveness and whether they are forward-looking. I then conduct two randomized informational interventions, nudging students to utilize an online discussion board more fully and to complete online assignments. I find that an additional 4.5 weeks of discussion board utilization increases final exam grades by 0.07 SD and completing one extra online assignment (out of 10 in total) raises final grades by 0.18 SD. I then develop and estimate a behavioural model of student effort supply, credibly identifying the marginal benefits and costs of effort at each stage of the cumulative learning process using the two field experiments. The estimated model allows me to explore the efficacy of changing assignment grading weights to improve student learning. In contrast to the actual (equally-weighted) grading scheme, simulated weights that maximize learning are decreasing across assignments, serving to increase effort by myopic students early in the course when they acquire foundational skills. My course-design approach is applicable more generally in other online and traditional course settings.