Doctor of Philosophy in Industrial Engineering & Operations Research

Our doctoral students are among the best in the country, prepared to go into both industry and academic positions. They have engaged in rigorous coursework, teaching, and research in areas such as stochastic processes, optimization, queueing theory, financial engineering, dynamic pricing & programming, supply chain management, and algorithmic trading. The Department provides full financial support for its PhD students. Applicants who do not hold an MS in a related engineering field should apply to the MS/PhD track program.

"Our doctoral program allows students to focus their research on making ground-breaking connections. The department provides a nurturing, collegial environment in which students thrive and grow to become the next leaders."

Dr. Jay Sethuraman
Department Vice Chair
Director of the PhD Program

Admissions Information Session
Tuesdays, 3pm - 4pm
RSVP with admit@ieor.columbia.edu

Application Deadline
December 15 (Annually)
ieor.columbia.edu/doctoral
ieor.columbia.edu/ieor-admissions
PhD Curriculum

Select Course Highlights

- Big Data
- Computing for Business Research
- Convex Optimization
- Data Driven Entrepreneurship
- Demand & Supply Analytics
- Financial Engineering
- Machine Learning
- Marketing Research
- Non Linear Programming
- Optimization
- Queueing Theory
- Scheduling Algorithms
- Stochastic Models
- Supply Chain Management

Irene Lo
Ph.D. ’18
Stanford University
Department of Management Science & Engineering
Assistant Professor

Irene is joining the Department of Management Science & Engineering at Stanford University as an Assistant Professor. Her research interests include designing matching markets and assignment processes to improve market outcomes, with a focus on public sector applications and socially responsible operations research.

Research Areas

- Algorithms
- Compressed Sensing
- Dynamic Pricing
- Dynamic Programming
- Financial Engineering
- Inventory Theory
- Market Design
- Markov Decision Processes
- Probability Models
- Queueing Theory
- Revenue Management
- Robust Optimization
- Service Systems
- Simulation
- Stochastic Processes
- Supply Chain

Antoine Desir
Ph.D. ’12
INSEAD
Technology and Operations Management
Assistant Professor

Antoine is currently an Assistant Professor of Technology and Operations Management at INSEAD. He was previously a postdoctoral researcher at Google in the OMEGA team (Optimization, Markets, Graph mining via better Algorithms). His research area include revenue management, online advertising and choice modeling.