



# IEOR MS ADVISING

## NOV 13, 2017



**COLUMBIA | ENGINEERING**  
The Fu Foundation School of Engineering and Applied Science





# HOW ARE YOU?



# AGENDA

- Core Requirements
- Spring Electives
- Cross Registration
- ENGI E4000 Professional Development & Leadership
- Summer and Fall 2018
- Questions & Answers

# CORE: MSOR PROGRAM

## COURSES:

1. IEOR E4150 Probability & Statistics\*
  2. IEOR E4004 Optimization Models\*
  3. IEOR E4106 Stochastic Models\*
  4. IEOR E4404 Simulation
- At least 6 courses (18 credits) must be in the IEOR Department (IEOR, SIEO, IEME, CSOR designation).
  - \*IEOR E4004 and IEOR E4150 (or IEOR E4106) must be completed during first term of study.

# CORE: MSIE PROGRAM

## COURSES:

1. IEOR E4150 Probability & Statistics\*
  2. IEOR E4000 Production Management\*
  3. IEOR E4004 Optimization Models\*
  4. **IEOR E4106 Stochastic Models**
- At least 6 courses (18 credits) must be in the IEOR department (IEOR, SIEO, IEME, CSOR designation).
  - \*IEOR E4000, IEOR E4004 and IEOR E4150 must be completed during first term of study.

# CORE: MSFE PROGRAM

## COURSES:

1. IEORE4007 Optimization Models
2. IEORE4701 Stochastic Models
3. IEORE4706 Foundations of FE
4. IEOR E4703 Monte Carlo Simulation
5. IEOR E4707 Continuous Time Models
6. IEOR E4709 Statistical Analysis and Time Series

# APPROVED MSFE ELECTIVES

1. IEOR E4525 Machine Learning for OR & FE
2. IEOR E4630 Asset Allocation
3. IEOR E4720 Deep Learning
4. IEOR E4729 Model Based Trading: Computational Models of Analysis & Execution
5. IEOR E4734 Foreign Exchange and Derivatives (1.5)
6. FINC B8307-060 Advanced Corporate Finance
7. **DROM B8112 Quantitative Finance: Models & Computation\*\***

**\*\*MBA Cross Registration.**

[More information, see: http://ieor.columbia.edu/ieor-courses-topics#05](http://ieor.columbia.edu/ieor-courses-topics#05)

# CORE: MS&E PROGRAM

## COURSES:

1. IEOR E4004 Optimization Models
  2. IEOR E4111 Operations Consulting (year long)
  3. IEOR E4101 Probability Models for MS&E
  4. **IEOR E4102 Stochastic Models for MS&E**
- At least 6 courses (18 credits) must be in the IEOR department (IEOR, SIEO, IEME, CSOR designation).
  - IEOR E4004 and E4101 must be completed during first term of study.



# MS&E DRO SEMI-CORE

*9 points total are required*

1. DROM B8106-060 Operations Strategy (1.5)\*
2. DROM B8108-060 Supply Chain Management\*
3. DROM B8110-060 Business Analytics Strategy\*
4. DROM B8123-060 Demand and Supply Analytics\*
5. DROM B8127-060 Immersion Seminar: Big Data (1.5)\*
6. IEOR E4650-002 Business Analytics

**MSE students have priority to the classes with (\*) in November; MSOR & MSIE students may add (1) in January.**

# MS&E MANAGEMENT SEMI-CORE

At least 3 points from Management and 3 points from Analysis,  
where (Management + Analysis = 9 points)

1. ECON GU4280 Corporate Finance (By Application)
2. FINC B8307-060 Advanced Corporate Finance
3. IEOR E4412 Quality Control and Management
4. IEOR E4510 Project Management
5. IEOR E4560 Lean Launch Pad (By Application)
6. IEOR E4998 Managing Tech Innovation & Entrepreneurship

# MS&E ANALYSIS SEMI-CORE

At least 3 points from Management and 3 points from Analysis,  
where (Management + Analysis = 9 points)

1. IEOR E4405 Scheduling
2. IEOR E4418 Transportation Analytics & Logistics
3. IEOR E4521 Systems Engineering, Tools and Methods
4. IEOR E4523 Data Analytics for OR\*\*
5. IEOR E4525 Machine Learning for OR & FE\*
6. IEOR E4540 Data Mining for Engineers
7. IEOR E4573 Computational Discrete Optimization
8. IEOR E4577 OR Methods in Marketing (1.5)
9. IEOR E4601 Dynamic Pricing & Revenue Management

\*Priority seating for students who have not taken Business Analytics.

\*\*Must have taken IEOR E4522 Python for OR.



# COURSES BY AREAS OF INTEREST

1. Analytics
2. Entrepreneurship
3. Finance and Financial Engineering
4. Operations Management

# ANALYTICS

1. DROM B8110-060 Business Analytics Strategy\*
2. DROM B8123-060 Demand & Supply Analytics\*
3. DROM B8127-060 Immersion Seminar: Big Data (1.5)\*
4. IEOR E4211 Applied Consulting (MSOR & MSIE only)
5. IEOR E4523 Data Analytics for OR
6. IEOR E4524 Industry Projects in Analytics
7. IEOR E4525 Machine Learning for OR & FE
8. IEOR E4540 Data Mining
9. IEOR E4574 Cloud Computing
10. IEOR E4650-002 Business Analytics
11. IEOR E4720 Deep Learning

MSE students have priority to the classes with (\*) in November; MSOR & MSIE students may add (1) in January.



# ANALYTICS PRE-REQ

1. IEOR E4523 Data Analytics for OR
  - Requires IEOR E4522 Python in OR (or) IEOR E4578 Tools for Analytics
2. IEOR E4524 Industry Projects in Analytics & IEOR E4574 Cloud Computing
  - Require IEOR E4523 Data Analytics for OR
3. IEOR E4525 Machine Learning for OR & FE
  - Priority to students who have not taken Business Analytics

# ENTREPRENEURSHIP

1. FINC B8307-060 Advanced Corporate Finance
2. IEOR E4560 Lean Launch Pad
3. IEOR E4570 Hacking for Energy
4. IEOR E4998 Managing Tech. Innovation & Entrepreneurship

# FINANCE & FINANCIAL ENGINEERING

1. ECON GU4280 Corporate Finance (By application)
2. FINC B8307-060 Advanced Corporate Finance\*
3. IEOR E4700 Introduction to Financial Engineering
4. IEOR E4630 Asset Allocation
5. IEOR E4734 Foreign Exchange and Related Derivatives
6. IEOR E4729 Model Based Trading: Computational Models of Analysis & Execution

\*FINC and DROM courses do not count towards the 18 IEOR credit requirement.



# OPERATIONS MANAGEMENT

1. DROM B8106-060 Operations Strategy (1.5)
2. DROM B8108-060 Supply Chain Management
3. DROM B8123-060 Demand and Supply Analytics
4. IEOR E4412 Quality Control and Management
5. IEOR E4405 Scheduling
6. IEOR E4510 Project Management
7. IEOR E4601 Dynamic Pricing and Revenue Management
8. IEOR E4573 Computational Discrete Optimization

# CROSS REGISTRATION

- **COLUMBIA BUSINESS (MBA & eMBA):**
  - Spring 2018: Starts January
- **COLUMBIA SIPA:**
  - Rolling basis, on SSOL

# PROFESSIONAL DEVELOPMENT

- MONDAYS & WEDNESDAYS 2:40-3:55pm;  
FRIDAYS afternoons
- Do not need to register
- Timeslot designated for career talk,  
workshops, and employer visits

# SUMMER AND FALL 2018

1. Summer 2018 and Fall 2018 schedules will be available by end of February 2018.
2. Summer 2018: IEOR will offer 2-3 electives and Fieldwork. Additional courses are offered in CS, Econ, Math, Stats, MBA, eMBA.
3. Fall 2018 electives are likely similar to Fall 2017; new courses may be offered.

# Q & A