Welcome to the

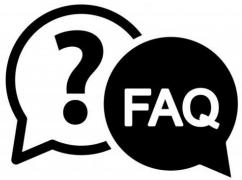
Applied Data Science Program:

Leveraging AI for Effective Decision Making

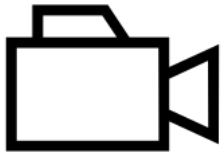
Session Guidelines

Listen-only mode

Type your questions in the Q&A box



Ask questions which are in the interest of the larger audience



Recording & Slides will be available 4 hours post session

Agenda

1. MIT Professional Education - Overview
2. Great Learning Overview
3. Program Vision and Structure
4. Weekly Operating Rhythm
5. Program Support
6. Alumni Speaks

MIT Professional Education Overview

MIT Professional Education Staff

Justin Vieira
Program Coordinator, Short Programs, MIT-PE

- ➔ Passionate practitioner in higher education. Provides support for the development, implementation, and growth of Short Programs with a focus on the Machine Learning and AI course portfolio.
- ➔ Master's degree in Higher Education Administration from Providence College.
- ➔ Served as a Program Operations Coordinator for The School of Professional Studies at Brown University and The Admissions Coordinator at Elon School of Law.

PE Programs - Key Outcomes

- ➔ Gain expertise that will immediately benefit your work (and your organization)
- ➔ Acquire high-value credentials that will set you apart from others
- ➔ Advance your career while enhancing your ability to lead, manage, and influence
- ➔ Network with your industry peers globally

MIT and MIT Professional Education's Mission

- The Institute is committed to generating, disseminating, and preserving knowledge, and to working with others to apply this knowledge for the benefit of humankind
- Professional Education is central to MIT's vision. It fulfills the mandate to connect practitioner-oriented education with industry, and to incorporate industry feedback and knowledge into MIT education and research
- The MIT Professional Education provides a gateway to renowned MIT research, knowledge and expertise for working professionals engaged in science and technology worldwide and our programs are developed and delivered by MIT faculty
- Our goal is for you to use the knowledge gained in PE's programs to benefit your work immediately, using the skills and credentials gained to enhance your career and benefit your team and your organization

Short Programs Overview

- Short Programs is a division of MIT Professional Education that focuses on running short, intensive courses and certificates in a variety of disciplines (ML/AI, Biotech, Innovation & Technology, Design & Manufacturing, Leadership, and more) as well as ADSP, a longer duration program

- Most of our courses are 2-5 days long and held in-person on our Cambridge campus, though some are run live online (in real time). All of our courses are delivered and developed by MIT faculty experts who incorporate the latest research into their curricula

- We partner with Great Learning to deliver ADSP on a global scale. Upon completing the program, you'll receive a certificate of completion and Continuing Education Units (CEUs) from MIT Professional Education. You'll also gain access to MIT PE's LinkedIn Alumni Network

Professional Certificate Program in Machine Learning & Artificial Intelligence

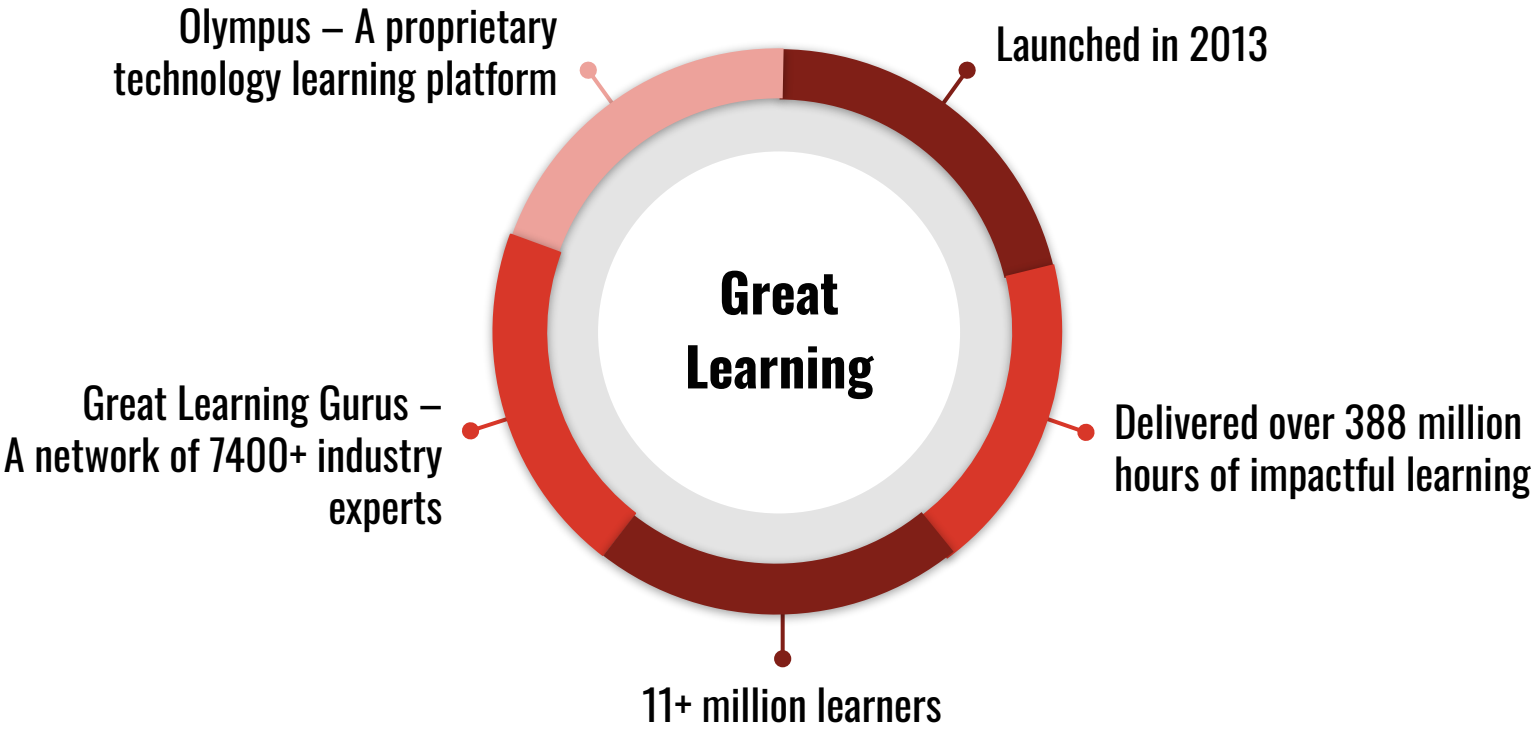
- After you complete ADSP and if you have at least 3 years of professional work experience under your belt you can apply for this professional certificate. ADSP can be used as an elective for this program
- Once you are accepted into the Professional Certificate Program in ML & AI, you will have 36 months to complete the course requirements
- You will need to complete 16 days worth of ML/AI focused courses (each course counts for between 2-5 days*) in a range of AI/ML topics including:

- AI System Architecture
- AI Ethics
- Bio Analytics
- Computational Design
- Computer Vision
- Deep Learning
- Design & Manufacturing with AI
- Hardware for AI
- Large Language Models (LLMs)
- Math for AI
- ML for Big Data and Text Processing
- Reinforcement Learning
- Scientific Discovery with AI
- Workplace Analytics

*Completing ADSP counts for 5 days towards the 16-day requirement for the Professional Certificate Program

Great Learning Overview

About Great Learning



Collaboration

Professional Education

Academic Collaborator

- ➔ Curriculum & content design
- ➔ Live virtual classrooms
- ➔ Case studies / Course projects
- ➔ Certificate of completion

Great Learning

Delivery Collaborator

- ➔ Mentored learning
- ➔ Academic support
- ➔ Program manager
- ➔ Learning management system

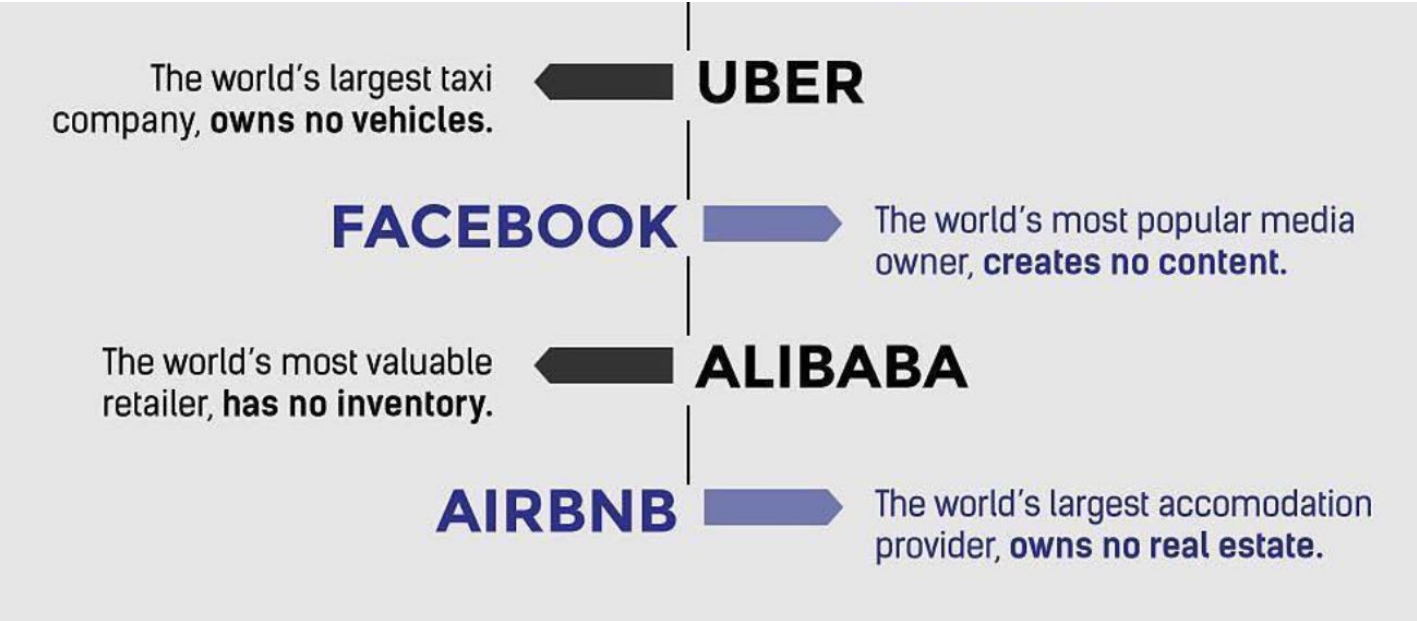
Program Vision & Outcomes

Guest Speaker

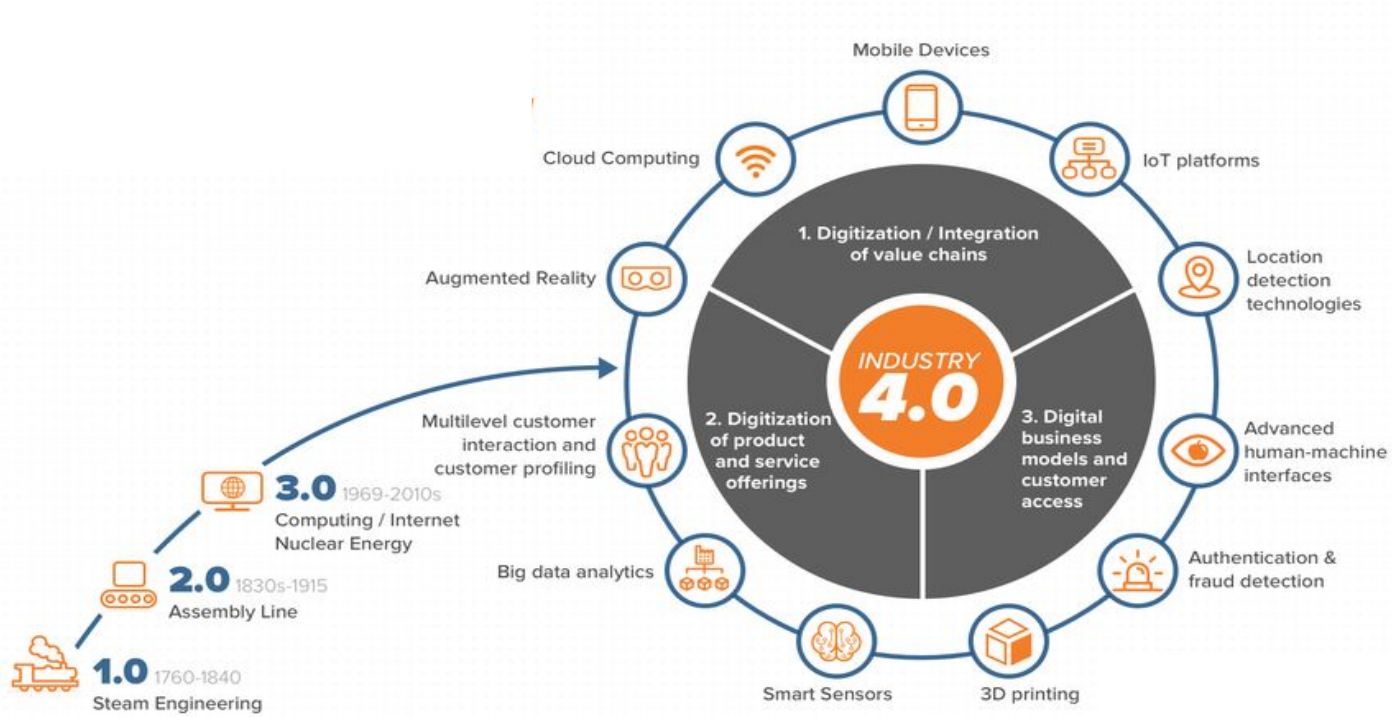
Amish Suchak
Data Scientist (Team Lead)

- 7+ years of work experience in Machine Learning & Data Science.
- Completed his master's degree in Electrical and Computer Engineering from University of Florida
- Amish is a seasoned professional in the field of data science
- Designed custom deep learning models, built scalable machine-learning pipelines, fine-tuned large language models (LLMs) and a lot more

Something interesting is happening...



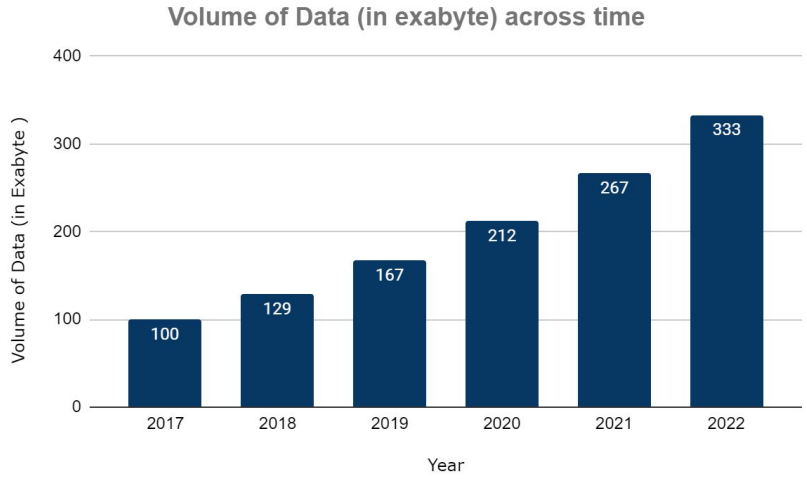
Start of 4th industrial revolution leading to Industry 4.0



Source: https://shockoe.com/ideas/understanding-impacts-fourth-industrial-revolution/

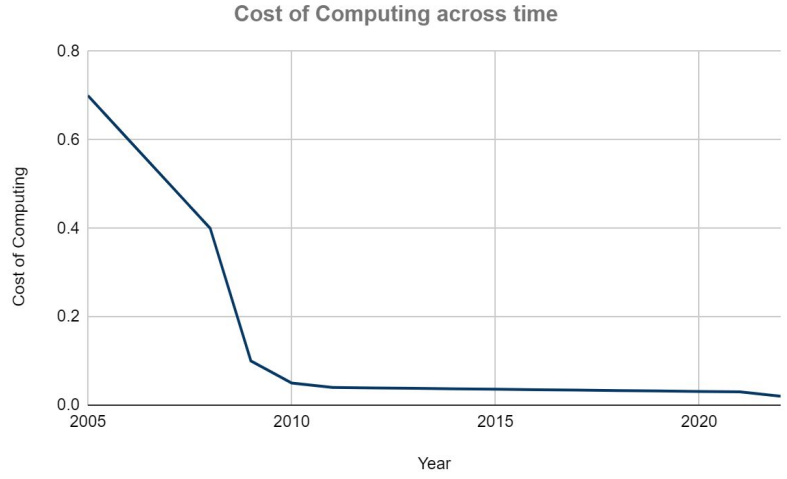
Driver of Industry 4.0

Amount of data being generated



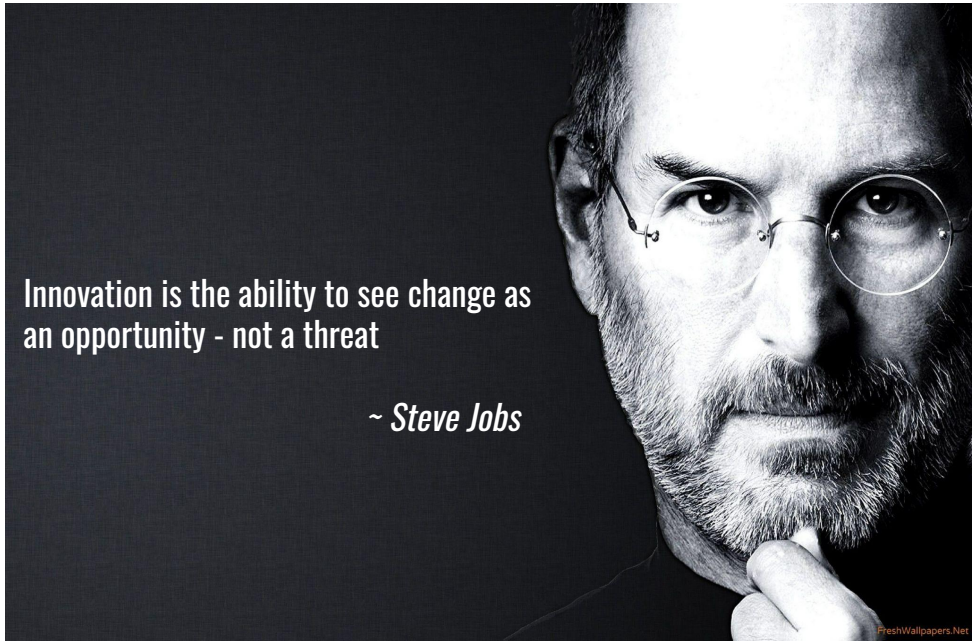
Source:
https://www.statista.com/statistics/267202/global-data-volume-of-consumer-ip-traffic/

Cost of computing resources



Source:
https://cmte.ieee.org/futuredirections/2017/10/18/a-never-ending-decrease-of-technology-cost/

“The Opportunity”

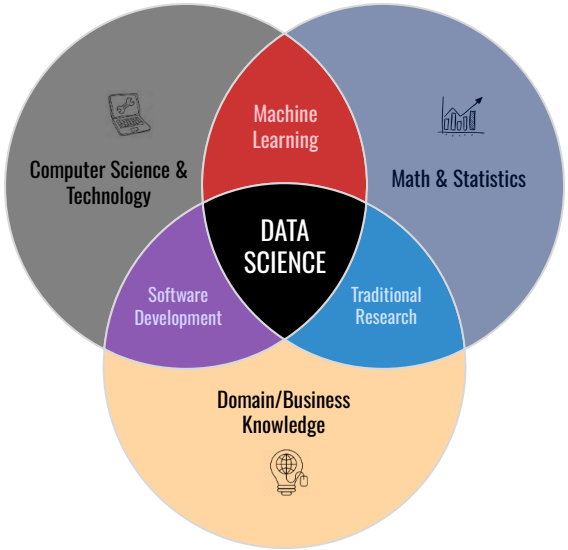


When Netflix was launched in 1997, Blockbuster was the undisputed champion of the video rental industry

But Blockbuster was a little too late as they were not willing to adapt and evolve into a modern business

Netflix thrived as they were willing to see the changing technology landscape as an opportunity to better meet customer needs

Skills needed to be a part of the “The New Era”



+ Problem Solving + Communication/ Storytelling

Applied Data Science Program - Vision

- ➔ Enable professionals to expand their repertoire of knowledge required to deal with the data science challenges of the future
- ➔ Deliver solid mathematical and conceptual foundations across the breadth of data science body of knowledge in the context of various practical problems
- ➔ Bring together the best of academic focus and industry perspectives with learning by doing pedagogy to enable meaningful learning outcomes

Applied Data Science Program - Outcomes

- ➔ Understand the intricacies of Data Science techniques and their applications to real-world problems
- ➔ Learn how various Machine Learning techniques can be used to solve complex problems and make data-driven business decisions
- ➔ Develop an understanding of how Python is used to apply Data Science
- ➔ Build an industry-ready portfolio highlighting projects that extract business insights from data, displaying expertise in computer vision and other advanced areas
- ➔ Understand the theory behind recommendation systems and explore their applications to multiple industries and business contexts
- ➔ Explore the realms of Machine Learning, Deep Learning and Neural Networks and how they can be applied to areas like Computer Vision

Program Structure

Design of the Program

12 weeks with 2 revision weeks

3 live virtual classes per week by MIT faculty for 5 core courses

12+ mentored learning sessions by industry professionals

Break weeks - revision sessions and office hours

Assessments: quizzes, course projects and practice projects

Capstone Project - 3 weeks

Find the detailed program information on Olympus Dashboard. Login to Olympus > Courses > Program Overview Course > Learner Handbook

Program Curriculum

Foundations: Python & Statistics Python Statistics	**Data Analysis & Visualization** Data Exploration Network Clustering	**Machine Learning** Regression Classification - Logistic & KNN	**Practical Data Science** Decision Trees & Random Forest Time Series
Deep Learning Neural Networks CNN Transformers	**Recommendation Systems** Introduction to RS Matrix & Tensors	**Mandatory Elective Project** Project submission on any 1 core course	**Capstone Project** Milestone & synthesis presentation

Live Virtual Classroom (LVC) Structure

Pre-reads shared with all learners to give an overview

Faculty gives an overview of the concept to be covered

Coverage of theoretical concepts in-depth and its interpretation

Practical application of the concept

Clarification of queries on concepts covered during the lecture

Summarize the session

Learn from MIT Faculty

Munther Dahleh

William A. Coolidge Professor for Electrical Engineering and Computer Science
Member of MIT's Laboratory for Information and Decision Systems (LIDS)

Stefanie Jegelka

X-Consortium Career Development Associate Professor in the Department of Electrical Engineering and Computer Science at MIT, where she is a member of CSAIL, and affiliated with IDSS

John Tsitsiklis

Clarence J Lebel Professor, with the Department of Electrical Engineering and Computer Science (EECS) at MIT and the Laboratory for Information and Decision Systems (LIDS)

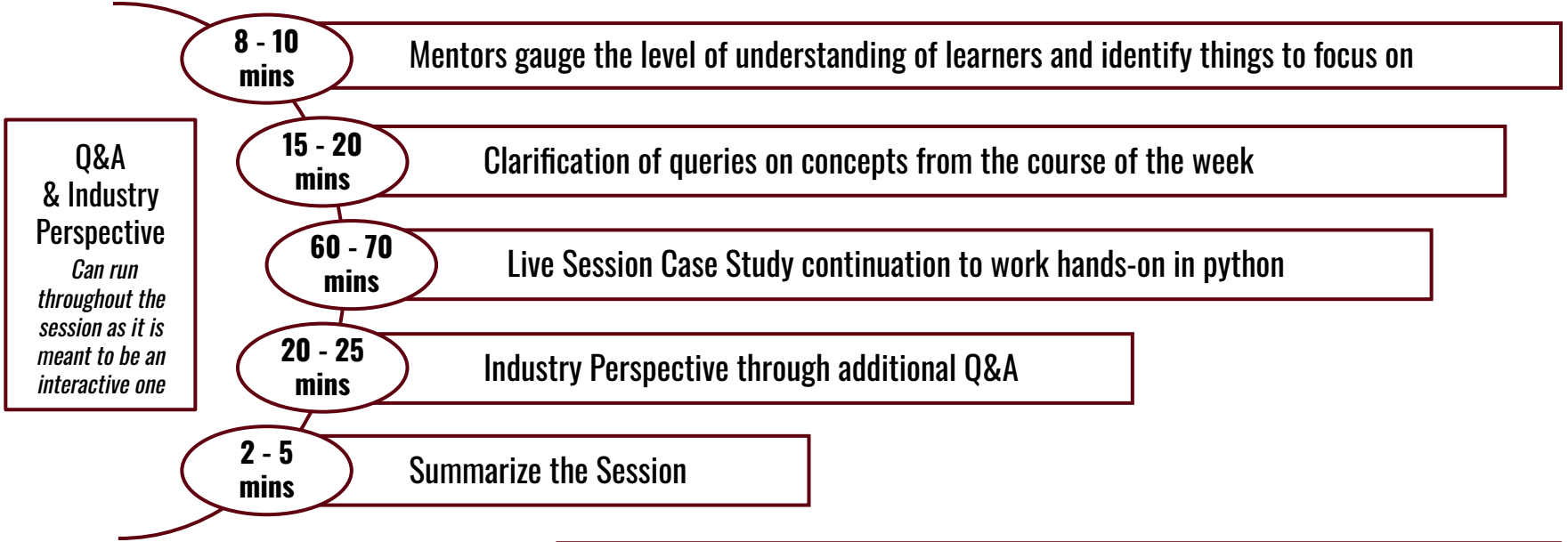
Caroline Uhler

Henry L. & Grace Doherty Associate Professor, Electrical Engineering and Computer Science

Devavrat Shah

Member of the Laboratory for Information and Decision Systems (LIDS) and Operations Research Center (ORC)
Director of the Statistics and Data Science Center (SDSC) in IDSS

Mentored Learning Session Structure



Note:
For Course 1, there would be 1 mentored learning session over the weekend
From Course 2, there would be 2 mentored learning sessions over the weekend

Program Assessments

In order to be eligible for certificate, you will have to complete all courses with minimum of 60% in each course

Course Assessment

- ➔ Time based MCQs
- ➔ Deadline driven
- ➔ Each week shall consist of 1 assessment

Mandatory Course Projects

- ➔ Mandatory course projects with templatized & problem solving focus, and an optional full-code track
  - Project 1 - Foundations : Python and Statistics
  - Project 2 - Select 1 Elective project from 5 core MIT courses for the final Capstone project
  - Capstone Project

Capstone Project

- ➔ Bring together all the learning from the program to solve a real world data science problem solving with an optional full code track.
- ➔ Simulation of industry project experience
- ➔ Live Presentations at the end of the project

**Assessments in every course hold 90% weightage, and attendance of the weekend mentored learning sessions hold 10% weightage*

Weekly Operating Rhythm

Learning Schedule

FOUNDATION WEEKS

MIT CORE COURSES WEEKS

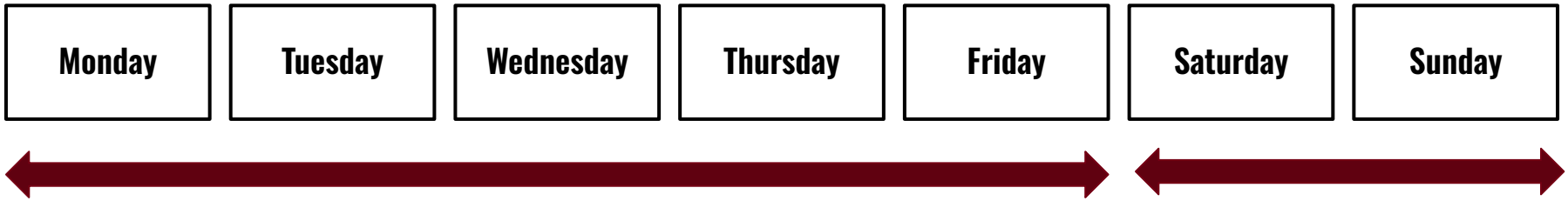
CAPSTONE WEEKS

Applied Data Science Program - Learning Schedule

Course #	Course	Topic	Session Faculty	Session Date	Session Time	Session Type	Attendance	Assessment Type	Assessmen
1	Foundations - Python and Statistics	Python Foundations	Great Learning Mentor	May 31, 2025 or Jun 1, 2025	To be Announced	*Live Weekend Mentored Learning Session with an Industry Expert*	Yes	*Quiz Assessment*	*Jun 2, 2025*
		Stats Foundations		Jun 7, 2025 or Jun 8, 2025	To be Announced			*Quiz + Project Assessment*	*Jun 9, 2025*
2	Data Analysis & Visualization	Exploratory Data Analysis and Visualization	Prof. Caroline Uhler	Jun 9, 2025	09:30 am - 11:30 am ET	*Weekday Live Virtual Class with MIT Faculty*	No	*Quiz Assessment*	*Jun 16, 2025*
		Networks		Jun 11, 2025	09:30 am - 11:30 am ET				
		Introduction to Unsupervised learning		Jun 13, 2025	09:30 am - 11:30 am ET				
		Data Exploration and Networks	Great Learning Mentor	Jun 14, 2025	To be Announced	*Live Weekend Mentored Learning Session with an Industry Expert*	Yes		
		Unsupervised Learning		Jun 15, 2025	To be Announced				
3	Machine Learning	Introduction to Supervised Learning: Regression	Prof. John Tsitsiklis	Jun 16, 2025	09:30 am - 11:30 am ET	*Weekday Live Virtual Class with MIT Faculty*	No	*Quiz Assessment*	*Jun 23, 2025*
		Model Evaluation: Cross-Validation & Bootstrapping		Jun 18, 2025	09:30 am - 11:30 am ET				
		Introduction to Supervised Learning: Classification		Jun 20, 2025	09:30 am - 11:30 am ET				
		Introduction to Supervised Learning and Regression	Great Learning Mentor	Jun 21, 2025	To be Announced	*Live Weekend Mentored Learning Session with an Industry Expert*	Yes		
		Introduction to Supervised Learning and Classification		Jun 22, 2025	To be Announced				
Revision Week 1		Conceptual Revision Session 1	Great Learning Mentor	To be Announced		*Optional Live Session with an Industry expert*	No	NA	NA
		Case Study Revision Session 1							
		Office Hours: Code Debugging Session 2							
Independence Day Week									
4	Practical Data Science	Decision Trees	Prof. Munzer Dahleh	Jul 7, 2025	09:30 am - 11:30 am ET	*Weekday Live Virtual Class with MIT Faculty*	No	*Quiz Assessment*	*Jul 14, 2025*
		Random Forest		Jul 9, 2025	09:30 am - 11:30 am ET				
		Time Series (Introduction)		Jul 11, 2025	09:30 am - 11:30 am ET				
		Decision Trees and Random Forest	Great Learning Mentor	Jul 12, 2025	To be Announced	*Live Weekend Mentored Learning Session with an Industry Expert*	Yes		
		Time Series		Jul 13, 2025	To be Announced				
5	Deep Learning	Intro to Neural Networks	Prof. Stefanie Jegelka	Jul 14, 2025	09:30 am - 11:30 am ET	*Weekday Live Virtual Class with MIT Faculty*	No	*Quiz Assessment*	*Jul 21, 2025*
		Convolutional Neural Networks		Jul 16, 2025	09:30 am - 11:30 am ET				
		Transformers		Jul 18, 2025	09:30 am - 11:30 am ET				
		Introduction to Deep Learning	Great Learning Mentor	Jul 19, 2025	To be Announced	*Live Weekend Mentored Learning Session with an Industry Expert*	Yes		
		Convolutional Neural Networks		Jul 20, 2025	To be Announced				
6	Recommendation Systems	Intro to Recommendation Systems	Prof. Devavrat Shah	Jul 21, 2025	09:30 am - 11:30 am ET	*Weekday Live Virtual Class with MIT Faculty*	No	*Quiz Assessment*	*Jul 28, 2025*
		Matrix		Jul 23, 2025	09:30 am - 11:30 am ET				
		Tensor, NN for Recommendation Systems		Jul 25, 2025	09:30 am - 11:30 am ET				
		Recommendation Systems Part 1	Great Learning Mentor	Jul 26, 2025	To be Announced	*Live Weekend Mentored Learning Session with an Industry Expert*	Yes		
		Recommendation Systems Part 2		Jul 27, 2025	To be Announced				
Revision Week 2		Conceptual Revision Session 2	Great Learning Mentor	To be Announced		*Optional Live Session with an Industry expert*	No	Elective Project Assessment	*Aug 4, 2025*
		Case Study Revision Session 2							
		Office Hours: Code Debugging Session 2							
		Capstone Briefing Session							
7	Capstone Project	Milestone QnA Session	Great Learning Mentor	Aug 9, 2025	To be Announced	*Optional Live Session with an Industry expert*	No	Capstone Milestone Project Submission	*Aug 11, 202*
		Capstone QnA Session		Aug 16, 2025				Capstone Project & Live Presentations Submission	*Aug 18, 202*
		Capstone Live Presentations		Aug 23, 2025 or Aug 24, 2025		*Final Capstone Assessment with Panel*		NA	NA

Weekly Operating Rhythm

Foundation Weeks (Weeks 1-2)



Weekdays:

- Recorded Video Lectures
- Practice Assessments/Assignments
- 1 Assessment with deadline
- 1 Mandatory Course Project with deadline

Weekends:

- Mentored Learning Session (MLS)
- 2-hour sessions either on Saturday or Sunday

Weekly Operating Rhythm

Core Course Weeks (Weeks 3-8)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

Weekdays:

- Pre-reads, Lecture Slides, Practice Project
- 3 Live Virtual Classes (LVC) each week
- Post Session Summary, FAQ
- 1 Assessment per course with deadline

Weekends:

- Mentored Learning Session (MLS)
- 2 hours of mentored learning sessions on **both** Saturday & Sunday

Please Note: The Live Virtual Class schedule is subject to change as per the MIT Professor's availability

Weekly Operating Rhythm

Revision Weeks

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

Week 5 - Revision Week 1:

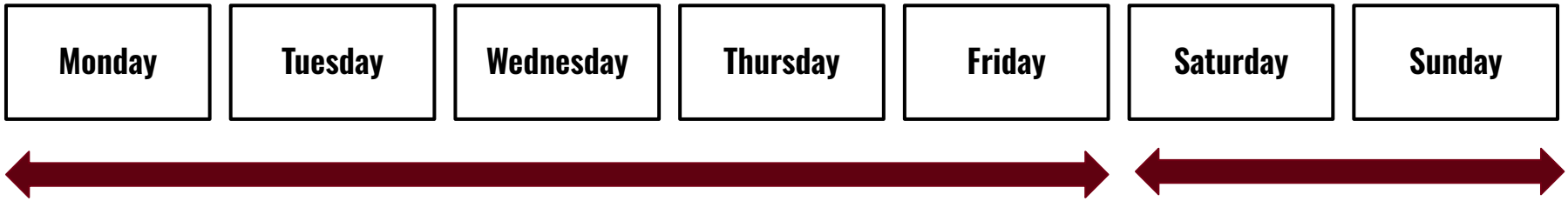
- Conceptual Revision Session 1
- Case Study Revision Session 1
- Office Hours - Code Debugging Session 1

Week 9 - Revision Week 2:

- Conceptual Revision Session 2
- Case Study Revision Session 2
- Office Hours - Code Debugging Session 2
- Capstone Briefing Session

Weekly Operating Rhythm

Capstone Project (Weeks 10-12)



Weekdays:

- Capstone Submissions
- Milestone Submission
- Final Submission

Weekends:

- Milestone Q&A sessions: 1.5 hours of mentored sessions either on Saturday or Sunday for 2 weeks
- Live Presentation

How to Learn More Effectively?

➔ **Commit to the journey**
- 12-18 hours per week
- Follow weekly operating rhythm
- Attend live sessions and mentored learning sessions
- In case you are unable to attend a session, go through the recording

➔ **Prepare well for all sessions**
- Go through the pre-reads before the sessions
- Finish all the necessary topics from the last lecture through material shared

➔ **Practice, Discuss, Repeat**
- Go through case studies and practice them hands-on
- Discuss with peers and mentor
- Read, explore & concretize

➔ **Respect assessments**
- Appear for assessment to test your understanding
- Work on course project and work on the feedbacks that you get on your submissions
- Submit the assignments on time

Program Support

Learning Support Ecosystem

Olympus	• You can raise support query through 'Support ?' • All queries responded to within 24-48 working hours • All program announcements show as notifications
Slack messenger	• Peer learning through groups & discussion forums • Ad-hoc communications from program office
Program Manager	• Direct call or text • Available during office hours (7am - 3pm ET, Mon-Sat) • Single POC for all program-related support
Program Office email	• Prefered mode for candidature change actions • Onboarding & post program communications • office.adsp.mit@mygreatlearning.com

- **GL Community**
- **AI Mentor**
- **Faculty / Mentors**
- **Peer Group**
- **Program Manager**
- **Academic Assistance**

Program Managers

Janvi

Nitish

Tehreen

Tanvi

The contact information of the respective Program Manager is updated on Olympus dashboard
Login to Olympus > Courses > Program Overview > Contact Program Office

Career Support

Career Prep

- Interview Q&A

- Industry and hiring insights

- Sample resume / templates

Get Guidance

- 1*1 Career Mentoring Session

- Resume / LinkedIn Reviews

Give us a lot of feedback

Be descriptive — Take the time to detail your feedback

Be constructive — How can your learning be improved?

Be specific — Use instances, examples, etc.

Be realistic — We are balancing the whole class' needs

Types of feedback: Post session feedback, Mid-term feedback, End-term feedback

Alumni Speaks

Alumni Speaker

Holly Beavon

Postdoctoral Fellow, I2A2 Technologies,Studios & Labs

- ➔ She is a Media Psychology PHD Researcher and Entertainment Professional
- ➔ She sought practical skills for analyzing complex biometric research data and now applying classification models in doctoral research.
- ➔ Currently she is focused on organizing definitions and measures of complex psychological processes evoked by stories and characters in both traditional and immersive media
- ➔ Holly has recently completed the MIT Applied Data Science Program in April 2025 and was part of the January 2025 cohort

Olympus Walkthrough

Q&A Session

Thank You!