

NANOSCIENCE AND NANOTECH: Industrial Application and Transformation

August 2–4, 2021 | Instructors: Brian Anthony, Vladimir Bulović | professional.mit.edu/nano

Note: All times are US Eastern Daylight Time. Schedule is subject to change.

DAY 1: MONDAY, AUGUST 2

	TOPICS	INSTRUCTOR(S)
AM	Intro and Context <ul style="list-style-type: none"> • A brief introduction to nano: surprisingly familiar yet ripe for discovery • Nano science through the lens of startup companies and entrepreneurship • Nanoscience: new behaviors in physical systems • Nanotechnology: applying insights across disciplines 	Brian Anthony, Vladimir Bulović, Annie Wang, Anna Osherov, Jorg Scholvin
PM	<ul style="list-style-type: none"> • Survey of new companies, current applications and their supporting toolsets and established companies deploying new products in new markets. • Tour of fabrication and metrology toolsets inside new MIT.nano facility • At the end of Day 1, begin collaborative design and analysis group exercise based on one of the problems presented. 	
10:00–11:10 AM	Brief introduction to the course and nano Nanoscience: new behaviors in physical systems	
11:10 AM–11:20 AM	Break	
11:20 AM–12:30 PM	Nanotechnology: applying insights across disciplines	
12:30–1:00 PM	Break	
1:00–2:10 PM	Survey of current companies, applications and their supporting toolsets Virtual tour of fabrication and metrology toolsets inside new MIT.nano facility	
2:10 PM	Class ends	
AT HOME	At home exercise	



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DAY 2: TUESDAY, AUGUST 3

	TOPICS	INSTRUCTOR(S)
AM/PM	Materials, Sensors, and Biology Case studies of startup companies, MIT-based research and/or commercialized applications in nanoscience and nanoengineering, interspersed with facilitated active group work on the design exercise and interactive discussions about participants' existing and planned use of nanoscale systems.	Brian Anthony, Vladimir Bulović, Annie Wang, Anna Osherov, Jorg Scholvin
9:00–10:00 AM	Exercise - Review and discuss	
10:00–11:10 AM	Nano case - Energy: PV, Battery Nano case - Materials and Displays	
11:10–11:20 AM	Break	
11:20 AM–12:30 PM	Nano case - Biology Part 1	
12:30–1:00 PM	Break	
1:00–2:10 PM	Nano case - Imaging Nano case - Biology Part 2	
2:10 PM	Class ends	
AT HOME	At home exercise	



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DAY 3: WEDNESDAY, AUGUST 4

	TOPICS	INSTRUCTOR(S)
AM	The Data side of Nano <ul style="list-style-type: none">• Case studies of startup companies, MIT-based research and/or commercialized applications in nanoscience and nanoengineering, interspersed with facilitated active	Brian Anthony, Vladimir Bulović, Annie Wang, Anna Osherov, Jorg Scholvin
PM	<ul style="list-style-type: none">• Conclude design exercise with brief presentations by each group• The data side of nano: managing, processing, and visualization• Final Q&A and wrap-up: What next?	
9:00–10:00 AM	Exercise - Review and discuss	
10:00–11:10 AM	The data side of nano - Managing and processing The data side of nano - Visualization - IL	
11:10–11:20 AM	Break	
11:20 AM–12:30 PM	Nano case - Memory and Compute - Quantum	
12:30–1:00 PM	Break	
1:00–2:00 PM	Discussion Q&A and wrap-up: What's next?	
2:00–2:30 PM	Closing and recognition to all	