INDUSTRIAL ENGINEERING AND OPERATIONS RESEARCH PROGRAM[1]: FIRST AND SECOND YEARS

	SEMESTER I	SEMESTER II	SEMESTER III	SEMESTER IV
MATHEMATICS	MATH UN1101 (3)	MATH UN1102 (3)	APMA E2000 (4) and E2001 (0)	Linear algebra (3)[2]
PHYSICS (three tracks, choose one)	UN1401 (3) UN1601 (3.5) UN2801 (4.5)	UN1402 (3) UN1602 (3.5) UN2802 (4.5)	Chemistry or physics lab: PHYS UN1494 (3) or PHYS UN3081 (2) or CHEM UN1500 (3) or CHEM UN1507 (3) or CHEM UN3085 (4) or	
CHEMISTRY (choose one course)	UN1403 (3) or UN1404 (3) or UN1604 (3.5) or UN2045 (3.5)			
UNIVERSITY WRITING	CC1010 (3) either semester			
REQUIRED NONTECHNICAL ELECTIVES	ECON UN1105 (4) and UN1155 recitation (0) either semester		HUMA CC1001, COCI CC1101, or Global core (3–4)	HUMA CC1002, COCI CC1102, or Global core (3–4)
			HUMA UN1121 or UN1123 (3) either semester	
FIRST- AND SECOND-YEAR DEPT. REQUIREMENTS			IEOR E3658 (3) either semester	
COMPUTER SCIENCE	ENGI E1006 (3) in either semester[3]			IEOR E2000(3)[4]
PHYSICAL EDUCATION	UN1001 (1)	UN1002 (1)		
THE ART OF ENGINEERING	ENGI E1102 (4) either semester			

[1] This includes all undergraduate programs within the Department of Industrial Engineering and Operations Research.
[2] The linear algebra requirement may be filled by either MATH UN2010 or APMA E3101 or COMS W3251.
[3] ENGI E1006 can be replaced by COMS W1004 or COMS W1007.
[4] IEOR E2000 can be replaced by COMS W3134 and COMS W4111. Students cannot get credit for IEOR E2000 if IEOR E2000 is taken after COMS W3134 and COMS W4111.

INDUSTRIAL ENGINEERING: THIRD AND FOURTH YEARS

		SEMESTER V	SEMESTER VI	SEMESTER VII	SEMESTER VIII
REQUIRED COURSES[1]		IEOR E3106 (3) Stochastic systems and applications — IEOR E3608 (3) Foundations of optimization — IEOR E4307 (3) Statistics and data analysis	IEOR E3402 (4) Production & inventory planning — IEOR E3404 (4) Simulation — IEOR E3609 (3) Advanced optimization	IEME E4200 (3) Human-centered design and innovation	IEOR E4405 (3) Scheduling
ELECTIVES	**NONTECH**	Students must complete the 27-point requirement. Please refer to page 9.			
	TECH[2]	15 points			
	MANAGEMENT[3]	3 points			
TOTAL ESTIMATED POINTS[4]		15	14	15	12

[1] Taking required courses later than the prescribed semester is not permitted.
[2] 15 points total. At least 6 points need to be at least 3000 level with the prefix IEOR, ORCS, or CSOR. The complete list is available at ieor.columbia.edu/undergraduate/electives.
[3] 3 points total. Cannot double-count non-technical electives. The complete list is available at ieor.columbia.edu/undergraduate/electives.
[4] Students must complete a minimum of 128 points to graduate.