

Course Requirements and Registration Priorities (Master), Fall 2019

#	Abbr	Title	Cr(US)	Cr(ECTS)	PreRequisite	CoRequisite	AntiRequisite	1st priority registration	2nd priority registration	3rd priority registration	4th priority registration
GSB											
GSB											
1	GSBF 501	Team Building and Business Communications	1	2							
2	GSBF 511	Applied Data Analytics I	2.5	5							
3	GSBF 512	Principles of Finance	2.5	5							
4	GSBF 515a	Investments I	2.5	5							
5	GSBF 516	Financial Markets and Institutions	2	4							
6	GSBF 533	Islamic Banking and Finance	2	4							
7	GSBF 535	Insurance and Actuarial Science	2	4							
8	GSBF 550A	Master's Thesis	5	10							
9	MBA 01	Consequential Leadership	1	2							
10	MBA 02	Business Mathematics and Business Computer Application	1	2							
11	MBA 03	Financial Accounting	2	4							
12	MBA 04	Probability and Statistics	2	4							
13	MBA 05	Business Communication	2	4							
14	MBA 07	Managerial Effectiveness	2	4							
15	MBA 08	Managerial Economics	2	4							
16	MBA 16	Entrepreneurship	2	4							
17	MBA 16A	Introduction to Entrepreneurship	1	2							
18	MBA 19	Distinguished Speaker Series	0	1							
19	MBA 20	Practicum Project	2.5	5							
20	MBA 20A	Internship	6	12							
21	MBAE 14	Innovation Process	2	4							
22	MBAE 15	Advanced Corporate Finance	2	4							
23	MBAE 16	Project Management	2	4							
24	MBAE 17	China Business Environment	2	4							
25	MBAE 18	Consumer Behavior	2	4							

26	MBAE 3	Valuation	2	4						
27	MBAE 4	Pricing	2	4						
28	MBAE 8	Leadership	2	4						
29	MSF 02	Thesis Preparation Seminar	2	4						
30	MSF 03	Advanced Econometrics	2	4						
31	MSF 04	Private Equity	2	4						
GSPP										
Master in Public Administration										
32	MPA 602	Public Administration in Theory and Practice	4	8				1 year GSPP Public Administration		
33	MPA 603	Economic Applications for Public Managers	4	8				1 year GSPP Public Administration		
34	MPA 605	Research Methods for Public Managers	4	8				1 year GSPP Public Administration		
35	MPA 699	Master's Project with Overseas Component	0	0				2 year GSPP Public Administration		
36	MPE 609	Organizational Behavior in the Public Sector	4	8				2 year GSPP Public Administration, GSPP		GSE, SEDS, SMG, SSH, SoM
37	MPE 617	Institutions and development policies	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEDS, SMG, SSH, SoM
38	MPE 624	Public Management Reforms in Transitional Countries	4	8				2 year GSPP Public Policy	GSPP	GSB, GSE, SEDS, SMG, SSH, SoM
39	MPE 625	Ethical Challenges in Governance	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEDS, SMG, SSH, SoM
40	MPE 626	Open Governance	4	8				2 year GSPP Public Policy	GSPP	GSB, GSE, SEDS, SMG, SSH, SoM
41	MPE 627	Public Policy and Health Issues	4	8				2 year GSPP Public Policy	GSPP	GSB, GSE, SEDS, SMG, SSH, SoM
42	MPE 628	Good Governance and Corruption	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEDS, SMG, SSH, SoM
43	MPE 637	Comparative Policy-Making and Public Policy	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEDS, SMG, SSH, SoM
44	MPE 685	Water Resources Policy and Management	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEDS, SMG, SSH, SoM
Master in Public Policy										
45	MPP 601	Microeconomics and Public Policy	4	8				1 year GSPP Public Policy		
46	MPP 611	Statistics for Public Policy	4	8				1 year GSPP Public Policy		
47	MPP 612	Public Policy Research and Evaluation	4	8				1 year GSPP Public Policy		
48	MPP 621	Public Policy and Analysis	4	8				1 year GSPP Public Policy		
49	MPP 631	Politics and Public Policy	4	8				2 year GSPP Public Policy		
GSE										

MA in Multilingual Education

50	EDML 601	Introduction to Linguistics	3	6				1 year GSE MA in Multil.Education			
51	EDML 610	Foundations of Multilingual Education	3	6				1 year GSE MA in Multil.Education			
52	EDML 614	Multilingual curriculum development and assessment	3	6				2 year GSE MA in Multil.Education			
53	EDML 627	Application of CLIL in Teaching	3	6				2 year GSE MA in Multil.Education			
54	EDML 630	Language Policy and Education Reform Across Contexts	3	6				2 year GSE MA in Multil.Education			
55	EDML 690	Thesis Research I	3	6				2 year GSE MA in Multil.Education			

MSc Educational Leadership HE

56	EDHE 609	Introduction to Educational Leadership: Higher Education	3	6				1 year GSE Educ.Leadership			
57	EDHE 610	Applying Educational Leadership in Kazakhstan	3	6				1 year GSE Educ.Leadership			
58	EDHE 623	Transformations of Higher Education in Eurasia/Post-Soviet States	3	6				1 year GSE Educ.Leadership			
59	EDHE 691	Thesis Seminar II	3	6				2 year GSE Educ.Leadership			
60	EDUC 505	Academic English 1	1.5	3				1 year GSE Educ.Leadership			
61	EDUC 507	Academic English III	1.5	3				2 year GSE Educ.Leadership			
62	EDUC 510	Advanced English for Education Professionals I	3	6				1 year GSE MA in Multil.Education			
63	EDUC 512	English for Thesis Writing I	3	6				2 year GSE MA in Multil.Education			
64	EDUC 571	Basic Kazakh	3	6				1 year GSE Educ.Leadership			
65	EDUC 602	Educational Context and Reform in Kazakhstan	3	6				1 year GSE Educ.Leadership, 1 year GSE MA in Multil.Education			
66	EDUC 607	Research Methods 1	3	6				1 year GSE Educ.Leadership, 1 year GSE MA in Multil.Education			

MSc Educational Leadership IE

67	EDIE 609	Introduction to Educational Leadership: Inclusive Education	3	6				1 year GSE Educ.Leadership			
68	EDIE 651	Inclusive Education: Policy Perspectives	3	6				1 year GSE Educ.Leadership			
69	EDIE 652	Curriculum Design: perspectives on Addressing Barriers to Teaching and Learning (Including SEN)	3	6				1 year GSE Educ.Leadership			
70	EDIE 691	Thesis Seminar II	3	6				2 year GSE Educ.Leadership			
MSc Educational Leadership SE											
71	EDSE 609	Introduction to Educational Leadership: School Education	3	6				1 year GSE Educ.Leadership			
72	EDSE 632	School Improvement and Effectiveness	3	6				1 year GSE Educ.Leadership			
73	EDSE 637	Student Discourse and Argumentation: Theories, Practices and Policies	3	6				1 year GSE Educ.Leadership			
74	EDSE 690	Thesis Seminar I	3	6				Registration by School Administration			
75	EDSE 691	Thesis Seminar II	3	6				2 year GSE Educ.Leadership			
Other											
Other											
76	T-ACCOUNTG 597	Financial Statements ANLY	3	6							
77	T-CE 500	The Chinese Economy	2.5	5.5							
78	T-CSER 500	Contemporary Sino-European Relations	2.5	5.5							
79	T-DECISION 618	Data Analytics for Business	3	6							
80	T-FINANCE 652	Project Finance	3	6							
81	T-IC 500	Introduction of China	2.5	5.5							
82	T-MMC:HSP 500	The Making of Modern China: Historical and Social Perspectives	2.5	5.5							
83	T-MSH 021	Labor Economics and Public Policy	4	8							
84	T-MSI 064	Topic in North Korean Economy	4	8							
85	T-MSN 026	Korean Economic Development	4	8							
86	T-MSN 048	Input/Output Analysis	4	8							

87	T-MSR 044	Urbanization for Economic Development	4	8						
88	T-MSR 060	Smart Cities	4	8						
89	T-OPERATNS 823	OPERATIONS STRATEGY	3	6						
90	T-PM:TP 500	Public Management: Theory and Practice	2.5	5.5						
91	T-PP 5196	Education Economics and Policy	4	8						
92	T-PP 5212	Financial Issues, Trade and Investment in Asia	4	8						
93	T-PP 5257	Urban Water Governance	4	8						
94	T-PP 5267	Urban Transport Policy: A Global View	4	8						
95	T-PP 5510	Governing Cities of Tomorrow	4	8						
96	T-RMPA 500	Research Methods in Public Administration	2.5	5.5						
97	T-STRATEGY 627	Sustainable Business Strategy	3	6						
SoM										
MMM										
98	MMMM 501	Molecular Basis of Infection	3	6				For MMMM Yr 1 Only. Registration by School Admin.		
99	MMMM 502	Molecular Basis of Cancer	3	6				For MMMM Yr 1 Only. Registration by School Admin.		
100	MMMM 503	Bioethics in Research: Principles and Practice	3	6				For MMMM Yr 2 Only. Registration by School Admin.		
101	MMMM 504	Molecular Basis of Genetic Disease	3	6				For MMMM Yr 1 Only. Registration by School Admin.		
102	MMMM 506	Biocomputing	1	2				For MMMM Yr 1 Only. Registration by School Admin.		
103	MMMM 603	Recombinant Drugs	3	6				For MMMM Yr 2 Only. Registration by School Admin.		
104	MMMM 604	Nutrigenomics	1.5	3				For MMMM Yr 2 Only. Registration by School Admin.		
105	MMMM 607	Basics and Applied Precision Medicine	3	6				For MMMM Yr 2 Only. Registration by School Admin.		
Public Health										

106	PUBH 501	Principles of Public Health Problem Solving	3	6				For PUBH Yr 1 Only. Registration by School Admin.			
107	PUBH 510	Inferential Biostatistics	1.5	3	MMMM 505 Inferential Biostatistics (3839) (C and above)						
108	PUBH 511	Inferential Biostatistics	3	6				For PUBH Yr 1 Only. Registration by School Admin.			
109	PUBH 521	Principles of Analytical Epidemiology	3	6				For PUBH Yr 1 Only. Registration by School Admin.			
110	PUBH 528	Qualitative Research Methods	3	6				For PUBH Yr 1 Only. Registration by School Admin.			
111	PUBH 531	Emerging Infectious Diseases	3	6				For PUBH Yr 1 Only. Registration by School Admin.			
112	PUBH 552	Principles of Health Economics and Policy	3	6	PUBH 551 Health Services Management, Health Economic and Health Policy (3696) (C and above)			For PUBH Yr 2 Only. Registration by School Admin.			
113	PUBH 601	Health Education and Promotion	3	6				For PUBH Yr 2 Only. Registration by School Admin.			
114	PUBH 633	Methods in Public Health	3	6				For PUBH Yr 2 Only. Registration by School Admin.			
115	PUBH 641	Problem Investigations in Environmental Health	3	6				For PUBH Yr 2 Only. Registration by School Admin.			
116	PUBH 681	Master's Project Planning	3	6				For PUBH Yr 2 Only. Registration by School Admin.			
SMG											
Mining Engineering											
117	MINE 501	Foundations of Mining	3	6				Mining Engineering			
118	MINE 502	Geology for Mining Engineers	3	6				Mining Engineering			
119	MINE 503	Applied Geostatistics	3	6				Mining Engineering			
120	MINE 504	Mine Geomechanics	3	6				Mining Engineering			
121	MINE 505	Advanced Mine Ventilation	3	6				Mining Engineering			

122	MINE 601	Mine Management and Sustainability	3	6				Mining Engineering			
123	MINE 602	Mine Maintenance and Services	3	6	MINE 502 Geology for Mining Engineers (3691) (C- and above)			Mining Engineering			
124	MINE 603	Multivariate Geostatistics	3	6	MINE 503 Applied Geostatistics (3692) (C- and above)			Mining Engineering			
125	MINE 606	Underground Hard Rock Geotechnical Engineering	3	6				Mining Engineering			
126	MINE 690	Thesis I	6	12				Mining Engineering			
Petroleum Engineering											
127	PETE 501	Foundations of Petroleum Engineering	3	6				Petroleum Engineering	2 year Gr SMG Petroleum Engineering	SEDS, SSH	
128	PETE 502	Petroleum Geology	3	6				Petroleum Engineering	SEDS, SSH		
129	PETE 503	Fluid Flow Through Porous Media	3	6				Petroleum Engineering	SEDS, SSH		
130	PETE 504	Advanced Formation Evaluation	3	6				Petroleum Engineering	SEDS, SSH		
131	PETE 505	Advanced Drilling Engineering	3	6				Petroleum Engineering	SEDS, SSH		
132	PETE 509	Advanced Well Testing and Evaluation	3	6				Petroleum Engineering	SEDS, SSH		
133	PETE 600	Thesis I	6	12				Petroleum Engineering			
134	PETE 601	Petroleum Data Analytics	3	6				Petroleum Engineering			
135	PETE 612	Research Proposal Preparation	3	6				Petroleum Engineering			
SSH											
Area Studies											
136	EAS 500	Introduction to Eurasia	4	8				Eurasian Studies	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
137	EAS 501	General Methodology	4	8				Eurasian Studies	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		

138	EAS 503	Thesis I	7.5	15	EAS 500 Introduction to Eurasia (1632) (C- and above) AND EAS 501 General Methodology (1633) (C- and above) AND EAS 502 Disciplinary Methodology (1379) (C- and above)			2 year Gr SSH Eurasian Studies			
139	EAS 511	Independent Study in Eurasian Studies	4	8				Instructor's permission required			
Area Studies, Political Science and International Relations, Sociology and Anthropology											
140	SOC 514/PLS 514/EAS 506	Qualitative Research Methods	4	8				Eurasian Studies, Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
Biological Science											
141	BIOL 520	Statistical Methods in Life Sciences	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
142	BIOL 550	Structural and Molecular Biology in Health and Disease	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
143	BIOL 560	Molecular Biology of Prokaryotic Cells	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
144	BIOL 631	Synthetic Biology	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
145	BIOL 632	Drug Discovery and Design	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
146	BIOL 635	Hot Topics in Life Sciences	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
147	BIOL 670	Gene Therapy	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
Chemistry											
148	CHEM 510	Principles of Physical Chemistry	3	6				Chemistry	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
149	CHEM 520	Applied Analytical Chemistry	3	6				Chemistry	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
150	CHEM 530	Inorganic Structures and Reaction Mechanisms	3	6				Chemistry	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
Economics											
151	ECON 501	Microeconomics I	4	8				Economics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		

152	ECON 502	Macroeconomics I	4	8				Economics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
153	ECON 503	Introduction to Contract Theory and Auctions	4	8				Economics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
154	ECON 505	Behavioral and Experimental Economics	4	8				Economics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
155	ECON 511	Statistics	4	8				Economics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
156	ECON 512	Mathematical Economics	4	8				Economics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
157	ECON 517	Development Economics	4	8				Economics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
158	ECON 532	Applied Econometrics	4	8				Economics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
159	ECON 589	Thesis I	4	8				2 year Gr SSH Economics			
History, Philosophy and Religious Studies											
160	HST 520	The Russian Empire in Asia and its neighbours, 1552-1919	4	8				Eurasian Studies	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
Kazakh Language and Turkic Studies											
161	TUR 575	Advanced Topics in Turkic Studies	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
Languages, Literature and Linguistics											
162	LING 572	Language Ideologies	4	8				Eurasian Studies	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
163	WLL 550	Laughter	4	8				Eurasian Studies	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
Mathematics											
164	MATH 514	Operations Research	3	6				Applied Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
165	MATH 517	Scientific Modeling and Simulation with Mathematics	3	6				Applied Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
166	MATH 519	Scientific Computing	3	6				Applied Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
167	MATH 540	Statistical Learning	3	6				Applied Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	

168	MATH 542	Statistical Programming	3	6				Applied Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
169	MATH 576	Numerical Methods for Partial Differential Equations	3	6				Applied Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
Physics											
170	PHYS 505	Classical Mechanics	3	6				Physics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
171	PHYS 511	Computational Modeling and Simulation	3	6				Physics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
172	PHYS 515	Classical Electrodynamics	3	6				Physics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
173	PHYS 530	Solid State Physics	4	8				Physics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
174	PHYS 550	Advanced Mathematical Physics	3	6				Physics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
Political Science and International Relations											
175	PLS 511	Advanced Research I	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
176	PLS 531	Politics and Governance of the Russian Federation	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
177	PLS 540	Core Seminar in Comparative Politics	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
178	PLS 546	The Politics of Immigration Control	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
179	PLS 550	Core Seminar in IR	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
180	PLS 555	The Politics of Arms in International Relations	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
181	PLS 565	Politics of International Finance	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
182	PLS 598	MA Thesis I	6	12				Political Science and International Relations			
SEDS											
Chemical and Materials Engineering											

183	MBME 603	Biomaterials Science & Engineering	3	6				1 year Gr SEDS Biomedical Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
184	MBME 604	Biosensors	3	6				1 year Gr SEDS Biomedical Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
185	MBME 610	Anatomy and Physiology for Biomedical Engineers	3	6				1 year Gr SEDS Biomedical Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
186	MCHME 601	Master Thesis I	12	24				2 year Gr SEDS Chemical Engineering, 2 year Gr SEDS Chemical and Materials Engineering			
187	MCHME 603	Advanced Materials Processing	3	6				1 year Gr SEDS Chemical Engineering, 1 year Gr SEDS Chemical and Materials Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	

188	MCHME 604	Advanced Materials Characterization Methods	3	6				1 year Gr SEDS Chemical Engineering, 1 year Gr SEDS Chemical and Materials Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
189	MCHME 605	Advanced Chemical Reaction Engineering	3	6				1 year Gr SEDS Chemical Engineering, 1 year Gr SEDS Chemical and Materials Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
190	MCHME 714	Computational Materials Engineering	3	6				2 year Gr SEDS Chemical Engineering, 2 year Gr SEDS Chemical and Materials Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
Civil Engineering											
191	MSC 600	Research Methods and Ethics	3	6				1 year Gr SEDS Biomedical Engineering, 1 year Gr SEDS Engineering Management	1 year Gr SMG, 2 year Gr SMG		

192	MSC 601	Technical Communication	3	6				1 year Gr SEDS Chemical Engineering, 1 year Gr SEDS Chemical and Materials Engineering, 1 year Gr SEDS Civil Engineering, 1 year Gr SEDS Civil and Environmental Engineering, 1 year Gr SEDS Computer Science, 1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Electrical and Electronic Engineering, 1 year Gr SEDS Mechanical Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering, 1 year Gr SEDS Robotics and Mechatronics	1 year Gr SMG, 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
193	MSC 602	Advanced Applied Mathematics	3	6				1 year Gr SEDS Biomedical Engineering, 1 year Gr SEDS Chemical Engineering, 1 year Gr SEDS Chemical and Materials Engineering, 1 year Gr SEDS Civil Engineering, 1 year Gr SEDS Civil and Environmental Engineering, 1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Electrical and Electronic Engineering, 1 year Gr SEDS Mechanical Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SMG, 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year UG SEDS (pending graduation)	
194	MSC 615	Advanced Statistics and Probability	3	6				1 year Gr SEDS Engineering Management	1 year Gr SMG, 2 year Gr SMG		

Civil and Environmental Engineering

195	EMEM 507	Project Management	3	6				1 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
196	EMEM 509	Systems Engineering	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology	
197	EMEM 523	Supply Chain Management	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology	
198	EMEM 533	Engineering Management and Engineering Economy	3	6				1 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
199	EMEM 537	Engineering Decision Tools	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology	

200	EMEM 538	Knowledge and Innovation Management	3	6				1 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
201	EMEM 539	Big Data and Information Management	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology	
202	EMEM 542	Production and Service Operations Management	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology	
203	MCEE 601	Master Thesis I	12	24	MCEE 600 Research Seminar (4692) (P)			2 year Gr SEDS Civil Engineering, 2 year Gr SEDS Civil and Environmental Engineering			
204	MCEE 603	Finite Element Methods	3	6				1 year Gr SEDS Civil Engineering, 1 year Gr SEDS Civil and Environmental Engineering, 1 year Gr SEDS Mechanical Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	

205	MCEE 604	Advanced Soil Mechanics	3	6				1 year Gr SEDS Civil Engineering, 1 year Gr SEDS Civil and Environmental Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
206	MCEE 605	Advanced Environmental Chemistry	3	6				1 year Gr SEDS Civil Engineering, 1 year Gr SEDS Civil and Environmental Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
207	MCEE 702	Structural Evaluation and Rehabilitation	3	6				2 year Gr SEDS Civil Engineering, 2 year Gr SEDS Civil and Environmental Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
208	MCEE 705	Environmental Modeling Development	3	6				2 year Gr SEDS Civil Engineering, 2 year Gr SEDS Civil and Environmental Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
Computer Science											
209	CSCI 501	Software Principles and Practice	3	6				Computer Science, Robotics	SEDS	SSH	
210	CSCI 511	Theory of Computation	3	6				Computer Science	SEDS	SSH	

211	CSCI 525	Quantum Computing	3	6				Computer Science, Physics	SEDS	SSH	
212	CSCI 545	Big Data Analytics	3	6				Computer Science	SEDS	SSH	
213	CSCI 575	Formal Methods and Applications	3	6				Computer Science	SEDS	SSH	
214	CSCI 594	Deep Learning	3	6				Computer Science	SEDS	SSH	
215	CSCI 693	Thesis Proposal	3	6	SEDS 591 Research Methods (3184) (C- and above)			SEDS, SSH			
216	DS 501	Fundamentals of Data Science	3	6				Data Science	SEDS	SSH	
217	DS 507	Database Management Systems	3	6				Data Science	SEDS	SSH	
218	DS 551	Process and Project Management	3	6				Data Science	SEDS	SSH	
219	SEDS 503	Laboratory Practicum	3	6	SEDS 502 Teaching Practicum (2824) (P)			SEDS, SSH			
220	SEDS 591	Research Methods	3	6				SEDS, SSH			
Electrical and Computer Engineering											
221	MECE 601	Master Thesis I	12	24				2 year Gr SEDS Electrical and Computer Engineering, 2 year Gr SEDS Electrical and Electronic Engineering			
222	MECE 603	Advanced Data Structures and Algorithms	3	6				1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Electrical and Electronic Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
223	MECE 605	Statistics and Probability for Electrical and Computer Engineers	3	6				1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Electrical and Electronic Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	

224	MECE 606	Embedded Systems and Applications	3	6				1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Electrical and Electronic Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
225	MECE 725	Smart Grids and Energy Systems	3	6	MECE 700 Industrial and Commercial Power System (4810) (D and above)			2 year Gr SEDS Electrical and Computer Engineering, 2 year Gr SEDS Electrical and Electronic Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year UG SEDS (pending graduation)	
226	MECE 726	Modern Semiconductor Devices and Systems	3	6				2 year Gr SEDS Electrical and Computer Engineering, 2 year Gr SEDS Electrical and Electronic Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year UG SEDS (pending graduation)	
Mechanical and Aerospace Engineering											
227	MMAE 601	Master Thesis I	12	24	MMAE 600 Research Seminar (4703) (P)			2 year Gr SEDS Mechanical Engineering, 2 year Gr SEDS Mechanical and Aerospace Engineering			
228	MMAE 603	Modern Control Engineering	3	6				1 year Gr SEDS Mechanical Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	

229	MMAE 605	Advanced Manufacturing Processes and Strategies	3	6				1 year Gr SEDS Mechanical Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
230	MMAE 710	Space Structures Design	3	6				2 year Gr SEDS Mechanical Engineering, 2 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
231	MMAE 713	Computational Fluid Structure Interaction	3	6				2 year Gr SEDS Mechanical Engineering, 2 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
Robotics and Mechatronics											
232	ROBT 501	Robot Manipulation and Mobility	3	6				Robotics	SEDS		
233	ROBT 503	Dynamic Systems and Control	3	6				Robotics	SEDS		
234	ROBT 611	Industrial Robotics	3	6	ROBT 501 Robot Manipulation and Mobility (2263) (C- and above) AND CSCI 501 Software Principles and Practice (2408) (C- and above)			Robotics	SEDS		

235	ROBT 613	Brain-Machine Interfaces	3	6				Robotics	SEDS		
236	ROBT 615	Optimal Control and Planning	3	6	ROBT 501 Robot Manipulation and Mobility (2263) (C- and above) AND ROBT 503 Dynamic Systems and Control (2264) (C- and above)			Robotics	SEDS		