

Course Requirements and Registration Priorities (Master), Spring 2022

#	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 514	Corporate Finance	2.5	5							
2	GSBF 515a	Investments I	2.5	5				For GSB programs only! Registration by School admin.			
3	GSBF 515b	Investments II	2.5	5	GSBF 515a Investments I (4106) (C- and above)			For GSB programs only! Registration by School admin.			
4	GSBF 520	Empirical Asset Pricing	2	4				For GSB programs only! Registration by School admin.			
5	MBA 05	Business Communication	2	4				For GSB programs only! Registration by School admin.			
6	MBA 09	Marketing Management	2	4				For GSB programs only! Registration by School admin.			
7	MBA 10	Foundations of Strategy	2	4				For GSB programs only! Registration by School admin.			
8	MBA 12	Operations Management	2	4				For GSB programs only! Registration by School admin.			
9	MBA 15	Corporate Finance	2	4				For GSB programs only! Registration by School admin.			
10	MBA 16	Entrepreneurship	2	4				For GSB programs only! Registration by School admin.			
11	MBAE 1	Investments	2	4							
12	MBAE 16	Project Management	2	4							
13	MBAE 22	Business Law	2	4							
14	MBAE 6	International Finance	2	4							
15	MHRM 00	Orientation	1.5	3							
16	MHRM 17	Introduction to Statistics and Research Methods	2	4							

17	MSF 01	Financial Modeling	2.5	5				For GSB programs only! Registration by School admin.			
18	MSF 02	Thesis Preparation Seminar	2	4				For GSB programs only! Registration by School admin.			
GSPP											
Master in Public Administration											
19	MPA 608	Strategic Management and Leadership	4	8				1 year GSPP Public Administration			
20	MPA 610	Program Evaluation	4	8	MPA 602 Public Administration in Theory and Practice (2077) (C- and above) AND MPA 603 Economic Applications for Public Managers (2074) (C- and above) AND MPA 605 Research Methods for Public Managers (2108) (C- and above)			1 year GSPP Public Administration			
21	MPA 699	Master's Project with Overseas Component	0	0				1 year GSPP Public Administration			
22	MPE 609	Organizational Behavior in the Public Sector	4	8				Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		
23	MPE 610	National Identity and Public Policy	4	8				Public Administration, Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		
24	MPE 611	Benefit Cost Analysis	4	8				Public Administration, Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		
25	MPE 623	Law and Development	4	8				Public Administration, Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		
26	MPE 638	Contemporary Security Challenges in Central Asia and Beyond	4	8				Public Administration, Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		
27	MPE 641	Globalisation and Public Policy	4	8			MPE 640 International Political Economy (1307) (C- and above) OR DPE 623 International Political Economy (6338) (C- and above)	Public Administration, Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		

28	MPE 647	Macroeconomic Development and Human Capital	4	8				Public Administration, Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		
29	MPE 649	Public Sector Innovation	4	8				Public Administration, Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		
30	MPE 670	Behavioural Insights and Public Policy	4	8				Public Administration, Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		
31	MPE 681	Natural Resource Management and Policy	4	8				Public Administration, Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		
32	MPE 682	Sustainable Development and Environmental Governance	4	8				Public Administration, Public Policy	GSB, GSE, SEDS, SMG, SSH, SoM		
Master in Public Policy											
33	MPP 602	Macroeconomics and Public Policy	4	8				1 year GSPP Public Policy			
34	MPP 603	Data Analytics in Public Policy	4	8	MPP 611 Statistics for Public Policy (1450) (C- and above) AND MPP 601 Microeconomics and Public Policy (1449) (C- and above) AND MPP 621 Public Policy and Analysis (1451) (C- and above) AND MPP 613 Policy Research Design and Methods (1301) (C- and above)			1 year GSPP Public Policy			
35	MPP 641	Public Management and Leadership	4	8				1 year GSPP Public Policy			
36	MPP 699	Policy Analysis Exercise with Overseas Component	8	16	MPP 601 Microeconomics and Public Policy (1449) (C- and above) AND MPP 611 Statistics for Public Policy (1450) (C- and above) AND MPP 613 Policy Research Design and Methods (1301) (C- and above) AND MPP 621 Public Policy and Analysis (1451) (C- and above)			2 year GSPP Public Policy			

37	MPP 699-0	Policy Analysis Exercise with Overseas Component	0	0	MPP 613 Policy Research Design and Methods (1301) (C- and above)			1 year GSPP Public Policy			
GSE											
MA in Multilingual Education											
38	EDML 612	Multilingual Society	3	6				1 year GSE MA in Multil.Education			
39	EDML 620	Language and Literacy Development	3	6				2 year GSE MA in Multil.Education			
40	EDML 630	Language Policy and Education Reform Across Contexts	3	6				1 year GSE MA in Multil.Education			
41	EDML 691	Thesis Research II	6	12				2 year GSE MA in Multil.Education			
MSc Educational Leadership HE											
42	EDHE 626	Organization and Governance in Higher Education	3	6				1 year GSE Educ.Leadership			
43	EDHE 692	Thesis Seminar III	4.5	9				2 year GSE Educ.Leadership			
44	EDHE 693	Thesis Seminar IV	9	18				2 year GSE Educ.Leadership			
45	EDUC 508	Academic English IV	1.5	3				2 year GSE Educ.Leadership			
46	EDUC 511	Advanced English for Education Professionals II	3	6				1 year GSE MA in Multil.Education			
47	EDUC 513	English for Thesis Writing II	3	6				2 year GSE MA in Multil.Education			
48	EDUC 531	Academic English 2	2	4				1 year GSE Educ.Leadership			
49	EDUC 572	Kazakh for Professional Purposes	3	6				1 year GSE MA in Multil.Education, 2 year GSE Educ.Leadership, Education			
50	EDUC 573	Academic Writing in Kazakh	3	6				1 year GSE MA in Multil.Education, Education			
51	EDUC 582	Kazakh for Professional Purposes (MSc)	2	4				1 year GSE Educ.Leadership			
52	EDUC 583	Academic Writing in Kazakh (MSc)	2	4				1 year GSE Educ.Leadership			
53	EDUC 585	Education in Kazakhstan for International Students	3	6				1 year GSE Educ.Leadership, 1 year GSE MA in Multil.Education, Education	2 year GSE Educ.Leadership		

54	EDUC 600	Research Methods (Part II)	4.5	9				1 year GSE MA in Multil.Education		
55	EDUC 608	Research Methods 2	3	6				1 year GSE Educ.Leadership		
56	EDUC 618	Educational Leadership	3	6				1 year GSE Educ.Leadership		
57	EDUC 675	Learning to Work	4.5	9				2 year GSE Educ.Leadership		
MSc Educational Leadership IE										
58	EDIE 626	Global Perspectives on Inclusive Education	3	6				1 year GSE Educ.Leadership		
59	EDIE 692	Thesis Seminar III	4.5	9				2 year GSE Educ.Leadership		
60	EDIE 693	Thesis Seminar IV	9	18				2 year GSE Educ.Leadership		
MSc Educational Leadership SE										
61	EDSE 626	Curriculum Development and Implementation	3	6				1 year GSE Educ.Leadership		
62	EDSE 692	Thesis Seminar III	4.5	9				2 year GSE Educ.Leadership		
63	EDSE 693	Thesis Seminar IV	9	18				2 year GSE Educ.Leadership		
Other										
Other										
64	T-MARKETNG 799	Strategic Brand Management	1.5	3						
SoM										
MMM										
65	MMMM 507	Critical Analysis of the Contemporary Concepts in Molecular Medicine	3	6				1 year Gr SOM Molecular Medicine		
66	MMMM 508	Molecular Immunology	3	6				1 year Gr SOM Molecular Medicine		
67	MMMM 509	From the Bench to the Bedside: Drug Development and Clinical Trials	3	6				1 year Gr SOM Molecular Medicine		
68	MMMM 510	Natural Medicine	3	6				1 year Gr SOM Molecular Medicine		
69	MMMM 511	Research Methods in Molecular Biomedicine	3	6				1 year Gr SOM Molecular Medicine		
70	MMMM 512	Molecular Basis of Chronic Inflammation	1	2				1 year Gr SOM Molecular Medicine		
71	MMMM 690	Master Research Project	15	30				2 year Gr SOM Molecular Medicine		

MPTOX

72	MPTX 504	Systemic Pharmacology I	3	6	MPTX 503 Principles of Pharmacology and Toxicology (5843) (C- and above)			1 year Gr SOM Pharmacology and Toxicology			
73	MPTX 507	Applied Toxicology	3	6	MPTX 503 Principles of Pharmacology and Toxicology (5843) (C- and above)			1 year Gr SOM Pharmacology and Toxicology			
74	MPTX 508	Research Methods in Pharmacology	3	6	MPTX 502 Cellular Communications (5842) (C- and above) OR MPTX 503 Principles of Pharmacology and Toxicology (5843) (C- and above)			1 year Gr SOM Pharmacology and Toxicology			
75	MPTX 509	Drug Discovery and Development II	3	6	MPTX 505 Drug Discovery I (5845) (C- and above)			1 year Gr SOM Pharmacology and Toxicology			
76	MPTX 511E	Environmental Toxicology	3	6				1 year Gr SOM Pharmacology and Toxicology			
77	MPTX 701	Research Project and Thesis	15	30	MPTX 601 Biostatistics and Critical Appraisal (6342) (C and above) AND MPTX 603 Introduction to Research Project (6344) (P)			2 year Gr SOM Pharmacology and Toxicology			

MSMR

78	MSMR 502	Nutrition in Sports and Exercise	3	6				1 year Gr SOM Sports Medicine and Rehabilitation			
79	MSMR 506	Seminar in Sports Medicine	3	6				1 year Gr SOM Sports Medicine and Rehabilitation			
80	MSMR 509	Robots for Rehabilitation	3	6				1 year Gr SOM Sports Medicine and Rehabilitation			
81	MSMR 511	Introduction to Research Project	3	6				1 year Gr SOM Sports Medicine and Rehabilitation			
82	MSMR 601	Psychology of Sports and Rehabilitation	3	6				1 year Gr SOM Sports Medicine and Rehabilitation			

83	MSMR 602	Advances in Sports and Rehabilitation	4	8				2 year Gr SOM Sports Medicine and Rehabilitation			
84	MSMR 702	Master Research Project Thesis	12	24				2 year Gr SOM Sports Medicine and Rehabilitation			
Public Health											
85	PUBH 512	Biostatistical Modeling and Sampling	3	6				1 year Gr SOM Public Health			
86	PUBH 522	Advanced Analytical Epidemiology	3	6				1 year Gr SOM Public Health			
87	PUBH 551	Health Services Management, Health Economic and Health Policy	3	6				1 year Gr SOM Public Health			
88	PUBH 631	Social and Behavioral Sciences in Public Health	3	6				1 year Gr SOM Public Health			
89	PUBH 641	Problem Investigations in Environmental Health	3	6				1 year Gr SOM Public Health			
90	PUBH 651	Risk Management in Health Care	3	6				2 year Gr SOM Public Health			
91	PUBH 652	Applied Methods in Health Services Research	3	6				2 year Gr SOM Public Health			
92	PUBH 682	Master's Project Implementation	12	24				2 year Gr SOM Public Health			
SMG											
Mining Engineering											
93	MINE 507	Rock Excavation Methods	3	6				Mining Engineering			
94	MINE 508	Advanced Rock Mechanics	3	6				Mining Engineering			
95	MINE 509	Advanced Surface Mine Design	3	6				Mining Engineering			
96	MINE 510	Advanced Underground Mine Design	3	6				Mining Engineering			
97	MINE 691	Thesis II	15	30	MINE 690 Thesis I (4531) (P)			Mining Engineering			
Petroleum Engineering											
98	PETE 506	Advanced Reservoir Simulation	3	6				Petroleum Engineering			
99	PETE 507	Advanced Reservoir Engineering	3	6				Petroleum Engineering			
100	PETE 508	Advanced Production Engineering	3	6				Petroleum Engineering			

101	PETE 600	Thesis I	6	12				Petroleum Engineering		
102	PETE 606	Advanced Enhanced Oil Recovery	3	6				Petroleum Engineering		
103	PETE 615	Advanced Petroleum Exploration	3	6	PETE 502 Petroleum Geology (4478) (C- and above)			Instructor's Permission Required. Registration through Add Course form only!		
School of Mining and Geosciences										
104	SMG 520	Research Methods	3	6				Mining Engineering, Petroleum Engineering		
SSH										
Area Studies										
105	EAS 502	Disciplinary Methodology	4	8				Eurasian Studies		
106	EAS 504	Thesis II	12.5	25	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) AND EAS 503 Thesis I (2141) (C- and above)			Eurasian Studies		
107	EAS 511	Independent Study in Eurasian Studies	4	8				Instructor's Permission Required. Registration through Add Course form only!		
Biological Science										
108	BIOL 502	Research Methods and Bioethics	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM
109	BIOL 570	Advanced Biotechnology	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM
110	BIOL 580	Applied Bioinformatics	3	6	BIOL 520 Statistical Methods in Life Sciences (1203) (C and above)			Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM
111	BIOL 590	Research Design and Project Planning	3	6				1 year Gr SSH Biological Sciences and Technologies		
112	BIOL 591	Cellular Biophysics	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM

113	BIOL 599	Master's Thesis Research	0	0				Biological Sciences		
114	BIOL 630	Advanced Neuroscience	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM
115	BIOL 637	Fundamentals of Advanced Microscopy	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM
116	BIOL 692	Master's Thesis	15	30	BIOL 691 Master's Thesis Research Proposal (5676) (B- and above)			Biological Sciences		
Chemistry										
117	CHEM 500	Hot Research Topics in Chemistry	3	6				Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM
118	CHEM 511	Theoretical Chemistry	3	6	CHEM 510 Principles of Physical Chemistry (5266) (C and above)			Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM
119	CHEM 515	Applied Colloid and Surfactant Science	3	6				Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM
120	CHEM 540	Organic Reactions and Mechanisms	3	6				Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM
121	CHEM 550	Selected Topics in Chemistry	3	6				Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM
122	CHEM 560	Directed research in chemistry	0	0				Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM
123	CHEM 592	Chemistry Seminar	3	6				Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM
124	CHEM 692	MSc Thesis in Chemistry	18	36	CHEM 691 Thesis Proposal (5858) (C- and above)			Chemistry		
Communication and Composition										
125	WCS 501	Science Communication	3	6				SSH	SMG, SoM	
Communication and Composition, Languages, Literature and Linguistics										
126	WLL 562/WCS 562	Creative Nonfiction	4	8				Instructor's Permission Required. Registration through Add Course form only!		
Economics										
127	ECON 516	Empirical Industrial Organization	4	8	ECON 501 Microeconomics I (2187) (C- and above) AND ECON 531 Econometrics (2505) (C- and above)			Economics	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM

128	ECON 521	Microeconomic Theory II	4	8	ECON 501 Microeconomics I (2187) (C- and above) AND ECON 512 Mathematical Economics (2154) (C- and above)			Economics	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
129	ECON 522	Macroeconomics II	4	8	ECON 502 Macroeconomics I (2186) (C- and above) AND ECON 512 Mathematical Economics (2154) (C- and above)			Economics	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
130	ECON 524	Research Methodology	4	8	ECON 501 Microeconomics I (2187) (C- and above) AND ECON 502 Macroeconomics I (2186) (C- and above) AND ECON 511 Statistics (2188) (C- and above)	ECON 531 Econometrics (2505) (D and above)		Economics	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
131	ECON 528	Wages and the Labor Market	4	8	ECON 521 Microeconomic Theory II (2506) (C- and above) AND ECON 531 Econometrics (2505) (C- and above)			Economics	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
132	ECON 531	Econometrics	4	8	ECON 511 Statistics (2188) (C- and above) AND ECON 512 Mathematical Economics (2154) (C- and above)			Economics	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
133	ECON 590	Thesis II	8	16	ECON 589 Thesis I (3714) (P)			Economics			
History, Philosophy and Religious Studies											
134	HST 534	Neither Red, Nor White: 1917 Revolution as a National Moment	4	8						GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
History, Philosophy and Religious Studies, History, Philosophy and Religious Studies											
135	HST 540/REL 540	Religions in the Soviet and Post-Soviet Eras	4	8						GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
136	REL 550/HST 550	Religion and Power in Islamic Central Asia	4	8						GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	

Kazakh Language and Turkic Studies

137	TUR 575	Advanced Topics in Turkic Studies	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
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Languages, Literature and Linguistics

138	LING 572	Language Ideologies	4	8				SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
139	WLL 542	Contemporary Russian and Russophone Literature	4	8				SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	

Mathematics

140	MATH 512	Optimization Methods and Techniques	3	6				Applied Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM
141	MATH 514	Operations Research	3	6				Applied Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM
142	MATH 542	Statistical Programming	3	6				Applied Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM
143	MATH 582	Mathematical Biology	3	6				Applied Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM
144	MATH 691	Thesis Proposal	3	6		MATH 592 Research Seminar (5760) (C- and above)		Instructor's Permission Required. Registration through Add Course form only!		
145	MATH 692	Thesis	15	30		MATH 691 Thesis Proposal (5769) (P)		Instructor's Permission Required. Registration through Add Course form only!		

Physics

146	PHYS 510	Quantum Mechanics	3	6				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
147	PHYS 520	Statistical Physics	3	6				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
148	PHYS 563	General Relativity	3	6				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
149	PHYS 565	Advanced Physics Laboratory	4	8				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
150	PHYS 570	Introduction to Optoelectronics	4	8				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
151	PHYS 600	Thesis Research	0	0				Physics		
152	PHYS 692	Thesis	21	42				Instructor's Permission Required. Registration through Add Course form only!		

Political Science and International Relations

153	PLS 510	Advanced Research I	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
154	PLS 526	Hannah Arendt on Power, Violence, and Revolution	4	8			PLS 426 Hannah Arendt on Power, Violence, and Revolution (5398) (C- and above)	Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
155	PLS 531	Politics and Governance of the Russian Federation	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
156	PLS 545	Political Violence	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
157	PLS 546	The Politics of Immigration Control	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
158	PLS 560	Environmental Politics	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
159	PLS 565	Politics of International Finance	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
160	PLS 596	Thesis Preparation	2	4			PLS 540 Core Seminar in Comparative Politics (1374) (C+ and above) OR PLS 550 Core Seminar in IR (1372) (C+ and above) AND PLS 511 Advanced Research I (1631) (C+ and above)	Political Science and International Relations			
161	PLS 599	MA Thesis II	10	20				Political Science and International Relations			
Sociology and Anthropology											
162	ANT 520	Materiality and Eurasian Society	4	8				SSH	GSB, GSE, GSPP, SEDS, SMG, SoM		
163	ANT 585	Postcolonial Theory and Its Application in Eurasia	4	8				SSH	GSB, GSE, GSPP, SEDS, SMG, SoM		
164	SOC 515	Social Problems and Issues in Eurasia	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
SEDS											
Chemical and Materials Engineering											

165	MBME 600	Research Seminar	3	6				Biomedical Engineering	Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
166	MBME 602	Master Thesis II	12	24	MBME 601 Master Thesis I (5953) (P)			Biomedical Engineering	Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
167	MBME 607	Advanced Tissue Engineering	3	6				Biomedical Engineering	Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
168	MBME 700	Strategies for Controlled Topical Delivery of Drugs	3	6				Biomedical Engineering	Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		

169	MBME 705	Infectious Diseases and Antimicrobial Strategies	3	6				Biomedical Engineering	Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
170	MBME 708	Biomedical Imaging	3	6				Biomedical Engineering	Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
171	MCHME 600	Research Seminar	3	6				Chemical and Materials Engineering	Biomedical Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
172	MCHME 602	MSc Thesis II	12	24				Chemical and Materials Engineering	Biomedical Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
173	MCHME 606	Advanced Heat and Mass Transfer	3	6				Chemical and Materials Engineering	Biomedical Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		

174	MCHME 701	Advanced Chemical Thermodynamics	3	6				Chemical and Materials Engineering	Biomedical Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
175	MCHME 707	Polymer Melt Fluid Mechanics and Processing	3	6				Chemical and Materials Engineering	Biomedical Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
176	MCHME 713	Advanced Energy Materials and their Applications	3	6				Chemical and Materials Engineering	Biomedical Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
177	MCHME 715	Air Quality, Toxicity and Health	3	6				Chemical and Materials Engineering	Biomedical Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		

Civil Engineering

178	MSC 600	Research Methods and Ethics	3	6				1 year Gr SEDS Biomedical Engineering, 1 year Gr SEDS Chemical and Materials Engineering, 1 year Gr SEDS Civil and Environmental Engineering, 1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Mechanical and Aerospace Engineering		
179	MSC 601	Technical Communication	3	6				1 year Gr SEDS Electrical and Computer Engineering	SEDS, SMG		
Civil and Environmental Engineering											
180	EMEM 510	Managerial Accounting	2	4				Engineering Management			
181	EMEM 511	Business Strategy	2	4				Engineering Management			
182	EMEM 513	Entrepreneurship	2	4				Engineering Management			
183	EMEM 514	Finance	2	4				Engineering Management			
184	EMEM 516	Management of Organizations	2	4				Engineering Management			
185	EMEM 517	Marketing	2	4				Engineering Management			
186	EMEM 527	Globalization and Engineering	3	6				Engineering Management			
187	EMEM 529	Capstone Project	8	16				Engineering Management			
188	EMEM 543	Quality and Lean Management	3	6				Engineering Management			
189	EMEM 545	Business Communication	2	4				Engineering Management			
190	EMEM 547	Applying Industry 4.0	3	6				Instructor's Permission Required. Registration through Add Course form only!			
191	EMEM 548	Understanding and Predicting Consumer Behavior	2	4				Engineering Management			

192	MCEE 600	Research Seminar	3	6				Civil and Environmental Engineering	Biomedical Engineering, Chemical and Materials Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
193	MCEE 602	MSc Thesis II	12	24				2 year Gr SEDS Civil and Environmental Engineering			
194	MCEE 606	Advanced Project Management	3	6				Civil and Environmental Engineering	Biomedical Engineering, Chemical and Materials Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
195	MCEE 704	Contaminated Site Management and Soil Treatment Technologies	3	6				Civil and Environmental Engineering	Biomedical Engineering, Chemical and Materials Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
196	MCEE 706	Concrete Repair and Maintenance	3	6				Civil and Environmental Engineering	Biomedical Engineering, Chemical and Materials Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
197	MCEE 707	Geotechnical Earthquake Engineering	3	6				Civil and Environmental Engineering	Biomedical Engineering, Chemical and Materials Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		

198	MCEE 712	Advanced Pavement Design, Analysis, and Rehabilitation	3	6				Civil and Environmental Engineering	Biomedical Engineering, Chemical and Materials Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
Computer Science											
199	CSCI 502	Hardware Software Co-Design	3	6	CSCI 501 Software Principles and Practice (2408) (C- and above)			Computer Science, Robotics	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering		
200	CSCI 545	Big Data Analytics	3	6				Data Science	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
201	CSCI 547	Algorithmic Trading	3	6				Computer Science, Data Science	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		

202	CSCI 572	Cognitive Modelling for Human-Computer Interaction	3	6				Computer Science, Data Science	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
203	CSCI 581	Acquisition and Analysis of Biomedical Data	3	6				Computer Science, Data Science	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
204	CSCI 591	Advanced Artificial Intelligence	3	6	CSCI 501 Software Principles and Practice (2408) (C- and above) OR DS 501 Fundamentals of Data Science (5218) (C- and above)			Computer Science, Data Science	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
205	CSCI 694	Thesis	15	30				Computer Science			
206	DS 504	Data Mining and Decision Support	3	6				Data Science	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
207	DS 694	Thesis	15	30	DS 693 Thesis Proposal (5915) (P)			Data Science			
208	SEDS 502	Teaching Practicum	3	6				Computer Science, Data Science, Robotics			
209	SEDS 592	Research Seminar	3	6				Computer Science, Data Science, Robotics			

Electrical and Computer Engineering

210	MECE 600	Research Seminar	3	6				1 year Gr SEDS Electrical and Computer Engineering			
211	MECE 602	Master Thesis II	12	24				2 year Gr SEDS Electrical and Computer Engineering			
212	MECE 606	Embedded Systems and Applications	3	6							
213	MECE 700	Industrial and Commercial Power System	3	6				Electrical and Computer Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
214	MECE 704	Fundamentals of Signal Processing	3	6				Electrical and Computer Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
215	MECE 707	Advanced Electronic Circuits	3	6				Electrical and Computer Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		

216	MECE 717	Pattern Recognition and Machine Learning	3	6				Electrical and Computer Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
Mechanical and Aerospace Engineering											
217	MMAE 600	Research Seminar	3	6				1 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
218	MMAE 602	Master Thesis II	12	24	MMAE 601 Master Thesis I (5014) (P)			2 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
219	MMAE 604	Advanced Computational Fluid Dynamics and Heat Transfer in Mechanical Engineering	3	6				1 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		

220	MMAE 700	Advanced Statistics and Probability	3	6				2 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
221	MMAE 701	Numerical Techniques for Engineers	3	6				2 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
222	MMAE 704	Design and Manufacturing with Environmental Concern	3	6				2 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
223	MMAE 705	Design Optimization	3	6				2 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
224	MMAE 710	Space Structures Design	3	6				SEDS, SMG			

225	MMAE 716	Digital Transformation Concepts	3	6				1 year Gr SEDS Engineering Management, 1 year Gr SEDS Mechanical and Aerospace Engineering, Engineering Management	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Industrial and Systems Engineering, Mechanical and Aerospace Engineering, Robotics		
Robotics and Mechatronics											
226	ROBT 502	Robot Perception & Vision	3	6	ROBT 501 Robot Manipulation and Mobility (2263) (C- and above)			Robotics	Biomedical Engineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical and Aerospace Engineering		
227	ROBT 692	Thesis	15	30	ROBT 691 Thesis Proposal (5930) (P)			Robotics			