

Course Requirements and Registration Priorities (Master), Spring 2020

#	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 513	Financial Data Analytics II	2.5	5				Registration by School Admin only			
2	GSBF 515b	Investments II	2.5	5	GSBF 515a Investments I (4106) (C- and above)			Registration by School Admin only			
3	GSBF 517	Macroeconomics for Finance	2.5	5				Registration by School Admin only			
4	GSBF 520	Empirical Asset Pricing	2	4				Registration by School Admin only			
5	GSBF 541	Global Finance Experience Residency (I)	2	4				Registration by School Admin only			
6	MBA 09	Marketing Management	2	4				Registration by School Admin only			
7	MBA 10	Foundations of Strategy	2	4				Registration by School Admin only			
8	MBA 13	Macroeconomics	2	4				Registration by School Admin only			
9	MBA 15	Corporate Finance	2	4				Registration by School Admin only			
10	MBA 16	Entrepreneurship	2	4				Registration by School Admin only			
11	MBAE 16	Project Management	2	4							
12	MBAE 18	Consumer Behavior	2	4							
13	MBAE 19	Global Economics for Managers	2	4	MBA 08 Managerial Economics (1722) (C and above)						
14	MBAE 4	Pricing	2	4							
15	MSF 01	Financial Modeling	2.5	5				Registration by School Admin only			
GSPP											
Master in Public Administration											
16	MPA 608	Strategic Management and Leadership	4	8				1 year GSPP Public Administration			
17	MPA 699	Master's Project with Overseas Component	0	0				1 year GSPP Public Administration			

18	MPE 610	National Identity and Public Policy	4	8				1 year GSPP Public Administration	1 year GSPP Public Policy, 2 year GSPP Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
19	MPE 611	Benefit Cost Analysis	4	8				1 year GSPP Public Administration	1 year GSPP Public Policy, 2 year GSPP Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
20	MPE 623	Law and Development	4	8				1 year GSPP Public Administration	1 year GSPP Public Policy, 2 year GSPP Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
21	MPE 638	Contemporary Security Challenges in Central Asia and Beyond	4	8				GSPP	GSB, GSE, SEDS, SMG, SSH, SoM		
22	MPE 644	The Media and Public Policy	4	8				1 year GSPP Public Administration	1 year GSPP Public Policy, 2 year GSPP Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
23	MPE 663	Applied Public Economics and Finance	4	8	MPP 601 Microeconomics and Public Policy (1449) (B- and above) OR MPA 603 Economic Applications for Public Managers (2074) (B- and above)			2 year GSPP Public Policy	1 year GSPP Public Administration, 2 year GSPP Public Administration	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
24	MPE 681	Natural Resource Management and Policy	4	8				1 year GSPP PhD Public Policy, 1 year GSPP Public Administration, 2 year GSPP Public Policy, GSPP			
25	MPE 682	Sustainable Development and Environmental Governance	4	8				1 year GSPP PhD Public Policy, 1 year GSPP Public Administration, 2 year GSPP Public Policy, GSPP			
26	MPE 688	New Technologies and Public Policy	4	8				1 year GSPP PhD Public Policy, 1 year GSPP Public Administration, 2 year GSPP Public Policy, GSPP			
27	MPE 689	Data Analytics for Public Policy	4	8				Public Administration, Public Policy			
Master in Public Policy											
28	MPP 602	Macroeconomics and Public Policy	4	8				1 year GSPP Public Policy			
29	MPP 613	Policy Research Design and Methods	4	8				1 year GSPP Public Policy			
30	MPP 641	Public Management and Leadership	4	8				1 year GSPP Public Policy			

31	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			
32	MPP 699-0	Policy Analysis Exercise with Overseas Component	0	0	MPP 613 Policy Research Design and Methods (1301) (C- and above)						
GSE											
MA in Multilingual Education											
33	EDML 612	Multilingual Society	3	6				1 year GSE MA in Multil.Education			
34	EDML 613	The Multilingual School	3	6				2 year GSE MA in Multil.Education			
35	EDML 620	Language and Literacy Development	3	6				Registration by School Admin only			
36	EDML 630	Language Policy and Education Reform Across Contexts	3	6				1 year GSE MA in Multil.Education			
37	EDML 691	Thesis Research II	6	12				2 year GSE MA in Multil.Education			
MSc Educational Leadership HE											
38	EDHE 692	Thesis Seminar III	4.5	9				2 year GSE Educ.Leadership			
39	EDUC 506	Academic English II	1.5	3				1 year GSE Educ.Leadership			
40	EDUC 508	Academic English IV	1.5	3				2 year GSE Educ.Leadership			
41	EDUC 511	Advanced English for Education Professionals II	3	6				1 year GSE MA in Multil.Education			
42	EDUC 513	English for Thesis Writing II	3	6				2 year GSE MA in Multil.Education			
43	EDUC 572	Kazakh for Professional Purposes	3	6				1 year GSE Educ.Leadership, 1 year GSE MA in Multil.Education, 1 year GSE PhD Education			
44	EDUC 600	Research Methods II	3	6				1 year GSE Educ.Leadership, 1 year GSE MA in Multil.Education			

45	EDUC 670	Internship Project	6	12				Registration by School Admin only			
46	EDUC 671	Work-based project	6	12				Registration by School Admin only			
47	EDUC 675	Learning to Work	4.5	9				Registration by School Admin only			
MSc Educational Leadership IE											
48	EDIE 691	Thesis Seminar II	3	6							
49	EDIE 692	Thesis Seminar III	4.5	9				2 year GSE Educ.Leadership			
MSc Educational Leadership SE											
50	EDSE 692	Thesis Seminar III	4.5	9				2 year GSE Educ.Leadership			
51	EDSE 693	Thesis Seminar IV	9	18							
Other											
Other											
52	T-MOA 106	Developing and Marketing Innovations	3	6							
53	T-OFF 510	Operations and Maintenance Management	1.5	3							
54	T-OFF 540	Condition Monitoring and Management	1.5	3							
SoM											
MMM											
55	MMMM 507	Critical Analysis of the Contemporary Concepts in Molecular Medicine	3	6				For YR 1 MMM only. Registration by School Admin.			
56	MMMM 508	Molecular Immunology	3	6				For YR 1 MMM only. Registration by School Admin.			
57	MMMM 509	From the Bench to the Bedside: Drug Development and Clinical Trials	3	6				For YR 1 MMM only. Registration by School Admin.			
58	MMMM 510	Natural Medicine	3	6				For YR 1 MMM only. Registration by School Admin.			
59	MMMM 511	Research Methods in Molecular Biomedicine	3	6				For YR 1 MMM only. Registration by School Admin.			
60	MMMM 512	Molecular Basis of Chronic Inflammation	1	2				For YR 1 MMM only. Registration by School Admin.			
61	MMMM 690	Master Research Project	15	30				For YR 2 MMM only. Registration by School Admin.			
Medicine											
62	MHPW 200	Health, Physical Fitness, and Well Being	3	6				GSE, GSE, GSPP, SEDS, SMG, SSH, SoM			
Public Health											

63	PUBH 512	Biostatistical Modeling and Sampling	3	6				For YR 1 PUBH only. Registration by School Admin.		
64	PUBH 522	Advanced Analytical Epidemiology	3	6				For YR 1 PUBH only. Registration by School Admin.		
65	PUBH 551	Health Services Management, Health Economic and Health Policy	3	6				For YR 1 PUBH only. Registration by School Admin.		
66	PUBH 631	Social and Behavioral Sciences in Public Health	3	6				For YR 1 PUBH only. Registration by School Admin.		
67	PUBH 641	Problem Investigations in Environmental Health	3	6				For YR 1 PUBH only. Registration by School Admin.		
68	PUBH 651	Risk Management in Health Care	3	6				For YR 2 PUBH only. Registration by School Admin.		
69	PUBH 652	Applied Methods in Health Services Research	3	6				For YR 2 PUBH only. Registration by School Admin.		
70	PUBH 682	Master's Project Implementation	12	24				For YR 2 PUBH only. Registration by School Admin.		
SMG										
Mining Engineering										
71	MINE 507	Rock Excavation Methods	3	6				Mining Engineering		
72	MINE 508	Advanced Rock Mechanics	3	6				Mining Engineering		
73	MINE 509	Advanced Surface Mine Design	3	6				Mining Engineering		
74	MINE 510	Advanced Underground Mine Design	3	6				Mining Engineering		
75	MINE 691	Thesis II	15	30	MINE 690 Thesis I (4531) (P)			Mining Engineering		
Petroleum Engineering										
76	PETE 506	Advanced Reservoir Simulation	3	6				Petroleum Engineering	SEDS	
77	PETE 507	Advanced Reservoir Engineering	3	6				Petroleum Engineering	SEDS	
78	PETE 508	Advanced Production Engineering	3	6				Petroleum Engineering	SEDS	
79	PETE 600	Thesis I	6	12				Petroleum Engineering		
80	PETE 602	Research Seminar	3	6				Petroleum Engineering		
81	PETE 606	Advanced Enhanced Oil Recovery	3	6				Petroleum Engineering	SEDS	
82	PETE 610	Advanced Reservoir Geomechanics	3	6				Petroleum Engineering	SEDS	
School of Mining and Geosciences										

83	SMG 520	Research Methods	3	6				Mining Engineering, Petroleum Engineering	GSB, GSE, GSPP, SEDS, SSH, SoM		
SSH											
Area Studies											
84	EAS 502	Disciplinary Methodology	4	8				SSH	GSB, GSE, GSPP, SEDS, SMG, SoM		
85	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)			GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
86	EAS 511	Independent Study in Eurasian Studies	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
Biological Science											
87	BIOL 570	Advanced Biotechnology	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
88	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	
89	BIOL 590	Research Design and Project Planning	3	6				1 year Gr SSH Biological Sciences and Technologies			
90	BIOL 591	Cellular Biophysics	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
Chemistry											
91	CHEM 511	Theoretical Chemistry	3	6	CHEM 510 Principles of Physical Chemistry (5266) (C and above)			Chemistry	Biological Sciences	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
92	CHEM 540	Organic Reactions and Mechanisms	3	6				Chemistry	Biological Sciences	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
Economics											
93	ECON 516	Empirical Industrial Organization	4	8	ECON 501 Microeconomics I (2187) (C- and above) AND ECON 531 Econometrics (2505) (C- and above)			Economics			

94	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			
95	ECON 522	Macroeconomics II	4	8	ECON 502 Macroeconomics I (2186) (C- and above) AND ECON 512 Mathematical Economics (2154) (C- and above)			Economics			
96	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			
97	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			
98	ECON 531	Econometrics	4	8	ECON 511 Statistics (2188) (C- and above) AND ECON 512 Mathematical Economics (2154) (C- and above)			Economics			
99	ECON 543	Topics in Macroeconomic Theory	4	8	ECON 502 Macroeconomics I (2186) (C- and above)			Economics			
100	ECON 590	Thesis II	8	16	ECON 589 Thesis I (3714) (P)			2 year Gr SSH Economics			
History, Philosophy and Religious Studies											
101	HST 524	Global Histories	4	8				SSH	GSB, GSE, GSPP, SEDS, SMG, SoM		
History, Philosophy and Religious Studies, Kazakh Language and Turkic Studies											
102	HST 552/TUR 552	Proseminar in Eurasian History, 552-1917	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
Kazakh Language and Turkic Studies											
103	TUR 575	Advanced Topics in Turkic Studies	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			

Languages, Literature and Linguistics

104	WLL 501	Advanced Topics in World Literature	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
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Mathematics

105	MATH 512	Optimization Methods and Techniques	3	6				Applied Mathematics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
106	MATH 541	Data Analysis and Statistical Learning	3	6	MATH 540 Statistical Learning (2340) (B- and above)			Applied Mathematics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
107	MATH 551	Advanced Numerical Methods	3	6				Applied Mathematics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		

Physics

108	PHYS 510	Quantum Mechanics	3	6				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
109	PHYS 520	Statistical Physics	3	6				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
110	PHYS 574	Lasers and Photonics	3	6				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
111	SST 501	Teaching and Learning	3	6				SSH			

Political Science and International Relations

112	PLS 510	Advanced Research I	4	8				Political Science and International Relations	Eurasian Studies		
113	PLS 522	Just War Theory	4	8				Political Science and International Relations	Eurasian Studies		
114	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	Eurasian Studies		
115	PLS 541	Advanced Topics in Comparative Politics	4	8				Political Science and International Relations	Eurasian Studies		
116	PLS 545	Political Violence	4	8				Political Science and International Relations	Eurasian Studies		
117	PLS 569	International Relations of Eurasia	4	8				Political Science and International Relations	Eurasian Studies		

118	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			
119	PLS 599	MA Thesis II	10	20				Political Science and International Relations			
Sociology and Anthropology											
120	ANT 510	Ethnography, Fiction, Memoir	4	8				Eurasian Studies, SSH	GSB, GSE, GSPP, SEDS, SMG, SoM		
SEDS											
Chemical and Materials Engineering											
121	MBME 600	Research Seminar	3	6				Biomedical Engineering	SEDS		
122	MBME 607	Advanced Tissue Engineering	3	6				Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering	SEDS	GSB, GSE, GSPP, SMG, SSH, SoM	
123	MBME 700	Strategies for Controlled Topical Delivery of Drugs	3	6				Biomedical Engineering	SEDS		
124	MBME 705	Infectious Diseases and Antimicrobial Strategies	3	6				Biomedical Engineering	SEDS		
125	MBME 708	Biomedical Imaging	3	6				Biomedical Engineering	SEDS		
126	MCHME 600	Research Seminar	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
127	MCHME 602	MSc Thesis II	12	24				Chemical Engineering, Chemical and Materials Engineering	SEDS		
128	MCHME 606	Advanced Heat and Mass Transfer	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
129	MCHME 701	Advanced Chemical Thermodynamics	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
130	MCHME 704	Advanced Safety, Reliability and Risk Engineering in Process Industries	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
131	MCHME 707	Polymer Melt Fluid Mechanics and Processing	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		

132	MCHME 709	Food Engineering and Processing	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
133	MCHME 715	Air Quality, Toxicity and Health	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
Civil Engineering											
134	MSC 600	Research Methods and Ethics	3	6				SEDS			
Civil and Environmental Engineering											
135	EMEM 510	Managerial Accounting	2	4				1 year Gr SEDS Engineering Management			
136	EMEM 511	Business Strategy	2	4				1 year Gr SEDS Engineering Management			
137	EMEM 513	Entrepreneurship	2	4				1 year Gr SEDS Engineering Management			
138	EMEM 514	Finance	2	4				1 year Gr SEDS Engineering Management			
139	EMEM 516	Management of Organizations	2	4				1 year Gr SEDS Engineering Management			
140	EMEM 517	Marketing	2	4				1 year Gr SEDS Engineering Management			
141	EMEM 527	Globalization and Engineering	3	6				Engineering Management			
142	EMEM 529	Capstone Project	8	16				Engineering Management			
143	EMEM 535	Managing Product and Service Development	3	6				Engineering Management			
144	EMEM 545	Business Communication	2	4				1 year Gr SEDS Engineering Management			
145	EMEM 548	Understanding and Predicting Consumer Behavior	2	4							
146	MCEE 600	Research Seminar	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
147	MCEE 602	MSc Thesis II	12	24				Civil Engineering, Civil and Environmental Engineering	SEDS		
148	MCEE 606	Advanced Project Management	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
149	MCEE 707	Geotechnical Earthquake Engineering	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
150	MCEE 712	Advanced Pavement Design, Analysis, and Rehabilitation	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
151	MCEE 713	Advanced Concrete Design	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		

152	MCEE 714	Advanced Wastewater Treatment	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
153	MCEE 715	Sustainable Development	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
Computer Science											
154	CSCI 502	Hardware Software Co-Design	3	6	CSCI 501 Software Principles and Practice (2408) (C- and above)			Computer Science	SEDS		
155	CSCI 545	Big Data Analytics	3	6				Data Science	SEDS	GSB, GSE, GSPP, SMG, SSH, SoM	
156	CSCI 547	Algorithmic Trading	3	6				Computer Science	SEDS		
157	CSCI 581	Acquisition and Analysis of Biomedical Data	3	6				Computer Science	SEDS		
158	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	SEDS		
159	CSCI 694	Thesis	15	30				Applied Mathematics, Biological Sciences, Chemistry, Computer Science, Physics, Robotics	SEDS		
160	DS 502	Probability and Statistics for Data Science	3	6				Data Science			
161	DS 504	Data Mining and Decision Support	3	6				Data Science	SEDS	GSB, GSE, GSPP, SMG, SSH, SoM	
162	SEDS 502	Teaching Practicum	3	6				Applied Mathematics, Computer Science, Physics, Robotics	SEDS		
163	SEDS 504	Innovation and Entrepreneurship	3	6				Applied Mathematics, Biological Sciences, Chemistry, Computer Science, Economics, Eurasian Studies, Physics, Political Science and International Relations, Robotics	SEDS		
164	SEDS 592	Research Seminar	3	6				Applied Mathematics, Biological Sciences, Chemistry, Computer Science, Data Science, Physics, Robotics	SEDS		
Electrical and Computer Engineering											

165	MECE 600	Research Seminar	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
166	MECE 602	Master Thesis II	12	24				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
167	MECE 700	Industrial and Commercial Power System	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
168	MECE 702	Advanced Power Electronics	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
169	MECE 717	Pattern Recognition and Machine Learning	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
170	MECE 719	Advanced Electromagnetics	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
171	MECE 724	System Modelling and Control	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
Mechanical and Aerospace Engineering											
172	MMAE 600	Research Seminar	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
173	MMAE 602	Master Thesis II	12	24	MMAE 601 Master Thesis I (5014) (P)			Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
174	MMAE 604	Advanced Computational Fluid Dynamics and Heat Transfer in Mechanical Engineering	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
175	MMAE 700	Advanced Statistics and Probability	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
176	MMAE 701	Numerical Techniques for Engineers	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
177	MMAE 703	Advanced Engineering Design and Manufacturing	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
178	MMAE 704	Design and Manufacturing with Environmental Concern	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
179	MMAE 705	Design Optimization	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		

180	MMAE 716	Digital Transformation Concepts	3	6				Engineering Management, Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
Robotics and Mechatronics											
181	ROBT 502	Robot Perception & Vision	3	6	ROBT 501 Robot Manipulation and Mobility (2263) (C- and above)			Computer Science, Robotics	SEDS		