

**Course Requirements and Registration Priorities  
(Graduate: Master), Spring 2018**

#	Abbr	Title	Cr(US)	Cr(ECTS)	PreRequisite	CoRequisite	AntiRequisite	1st priority registration	2nd priority registration	3rd priority registration	4th priority registration
<b>SEng</b>											
<b>Chemical Engineering</b>											
1	MCHE 601	Pipeline Engineering & Flow Assurance	3	6							
2	MCHE 602	Process Engineering and Simulation	3	6	MCHE 615 Advanced Unit Operations (D and above)						
3	MCHE 603	Crude Oil Processing	3	6							
4	MCHE 604	Natural Gas Processing	3	6							
5	MCHE 605	Petroleum Refining Water/Wastewater Use and Management	3	6							
<b>Civil Engineering</b>											
6	EMEM 510	Managerial Accounting	2	4							
7	EMEM 511	Business Strategy	2	4							
8	EMEM 512	Leading Change	2	4							
9	EMEM 513	Entrepreneurship	2	4							
10	EMEM 514	Finance	2	4							
11	EMEM 516	Management of Organizations	2	4							
12	EMEM 517	Marketing	2	4							
13	EMEM 529	Capstone Project	7.5	15							
14	EMEM 535	Managing Product and Service Development	3	6							
15	EMEM 543	Quality and Lean Management	3	6							
16	EMEM 545	Business Communication	2	4							
17	MCE 609	Contaminated Site Management and Soil Treatment Technologies	3	6							

18	MCE 610	Sustainable Transportation Systems	3	6						
19	MCE 611	Sustainable Infrastructure Systems	3	6						
20	MCE 612	Resilient Structural and Geotechnical Systems	3	6						
<b>Electrical and Electronic Engineering</b>										
21	MEE 601	Industrial and Commercial Power System	3	6						
22	MEE 602	Advanced Power Electronics	3	6						
23	MEE 609	Internet of Things	3	6						
24	MEE 615	Wireless Communications	3	6						
25	MEE 618	Optical Communication	3	6						
26	MEE 620	RF and Microwave Communications Systems	3	6						
27	MEE 624	Pattern Recognition	3	6						
28	MEE 627	Switched Capacitor Converters (Special Topics in Power Engineering)	3	6						
29	MEE 629	System Design for Wireless	3	6						
<b>Mechanical Engineering</b>										
30	MME 622	Advanced Design and Manufacturing	3	6						
31	MME 623	Design and Manufacturing with Environmental Concern	3	6						
32	MME 624	Design Optimization	3	6						
33	MME 625	Advanced Computer Aided Engineering	3	6						
34	MME 626	Advanced Manufacturing Processes and Strategies	3	6						
<b>SST</b>										
<b>Biological Science</b>										
35	BIOL 530	Bioethics Principles and Practices	3	6				1 year Graduate SST Biological Sciences		
36	BIOL 550	The Eukaryotic Cells in Health and Disease	3	6				1 year Graduate SST Biological Sciences		
37	BIOL 560	Molecular Biology of Prokaryotic Cells	3	6				1 year Graduate SST Biological Sciences		
38	BIOL 600	Graduate Seminar Series	3	6				1 year Graduate SST Biological Sciences, 2 year Graduate SST Biological Sciences		
39	BIOL 637	Fundamentals of Advanced Microscopy	3	6	BIOL 501 Fundamentals of Biological Sciences (C- and above)			1 year Graduate SST Biological Sciences, 2 year Graduate SST Biological Sciences		

40	BIOL 699	Research Thesis II	6	12				2 year Graduate SST Biological Sciences			
<b>Computer Science</b>											
41	CSCI 502	Hardware Software Co-Design	3	6	CSCI 501 Software Principles and Practice (C- and above)			1 year Graduate SST Computer Science, 1 year Graduate SST Robotics and Mechatronics			
42	CSCI 591	Advanced Artificial Intelligence	3	6	CSCI 501 Software Principles and Practice (C- and above)			1 year Graduate SST Computer Science			
<b>Mathematics</b>											
43	MATH 512	Optimization Methods and Techniques	3	6	MATH 517 Scientific Modeling and Simulation with Mathematics (B- and above)			1 year Graduate SST Applied Mathematics			
44	MATH 541	Data Analysis and Statistical Learning	3	6	MATH 540 Statistical Analysis (B- and above)			1 year Graduate SST Applied Mathematics			
45	MATH 551	Advanced Numerical Methods	3	6	MATH 517 Scientific Modeling and Simulation with Mathematics (B- and above)			1 year Graduate SST Applied Mathematics			
<b>Physics</b>											
46	PHYS 510	Quantum Mechanics	3	6				1 year Graduate SST Physics			
47	PHYS 520	Statistical Physics	3	6				1 year Graduate SST Physics			
48	SST 502	Teaching Practicum	3	6	SST 501 Teaching and Learning (C- and above)			1 year Graduate SST Applied Mathematics, 1 year Graduate SST Computer Science, 1 year Graduate SST Physics, 1 year Graduate SST Robotics and Mechatronics			
49	SST 504	Innovation & Entrepreneurship	3	6				1 year Graduate SST Computer Science, 1 year Graduate SST Physics, 1 year Graduate SST Robotics and Mechatronics			
50	SST 592	Research Seminar	3	6				1 year Graduate SST Applied Mathematics, 1 year Graduate SST Computer Science, 1 year Graduate SST Physics, 1 year Graduate SST Robotics and Mechatronics			
51	SST 692	Thesis	15	30				2 year Graduate SST Computer Science, 2 year Graduate SST Physics, 2 year Graduate SST Robotics and Mechatronics			
<b>Robotics and Mechatronics</b>											
52	ROBT 502	Robot Perception & Vision	3	6	ROBT 501 Robot Manipulation and Mobility (C- and above)			1 year Graduate SST Robotics and Mechatronics			

**SHSS**

**Area Studies**

53	EAS 502	Disciplinary Methodology	4	8				1 year Graduate SST Robotics and Mechatronics			
54	EAS 504	Thesis II	12.5	25	EAS 500 Introduction to Eurasia (C- and above) AND EAS 501 General Methodology (C- and above) AND EAS 502 Disciplinary Methodology (C- and above) AND EAS 503 Thesis I (C- and above)			Eurasian Studies			
55	EAS 511	Independent Study in Eurasian Studies	4	8				Through Add form only			

**Economics**

56	ECON 521	Microeconomic Theory II	4	8	ECON 501 Microeconomics I (C- and above) AND ECON 512 Mathematical Economics (C- and above)			Economics, Eurasian Studies, Political Science and International Relations			
57	ECON 522	Macroeconomics II	4	8	ECON 502 Macroeconomics I (C- and above) AND ECON 512 Mathematical Economics (C- and above)			Economics, Eurasian Studies, Political Science and International Relations			
58	ECON 524	Research Methodology	4	8	ECON 501 Microeconomics I (C- and above) AND ECON 502 Macroeconomics I (C- and above) AND ECON 511 Statistics (C- and above)	ECON 531 Econometrics (D and above)		Economics, Eurasian Studies, Political Science and International Relations			
59	ECON 528	Wages and the Labor Market	4	8	ECON 521 Microeconomic Theory II (C- and above) AND ECON 531 Econometrics (C- and above)			Economics, Eurasian Studies, Political Science and International Relations			
60	ECON 531	Econometrics	4	8	ECON 511 Statistics (C- and above) AND ECON 512 Mathematical Economics (C- and above)			Economics, Eurasian Studies, Political Science and International Relations			
61	ECON 590	Thesis II	8	16	ECON 589 Thesis I (C- and above)			Economics, Eurasian Studies, Political Science and International Relations			

**History, Philosophy and Religious Studies**

62	HST 524	Global Histories	4	8				Economics, Eurasian Studies, Political Science and International Relations			
<b>Political Science and International Relations</b>											
63	PLS 510	Advanced Research II	4	8	PLS 511 Advanced Research I (D and above)			1 year Graduate SHSS Political Sciences and Int. Relations			
64	PLS 531	Politics and Governance of the Russian Federation	4	8	PLS 101 Introduction to Political Science (C- and above) AND PLS 140 Introduction to Comparative Politics (C- and above) AND (Subject "PLS" BETWEEN 200 and 299 OR Subject "" BETWEEN 200 and 299 OR Subject "" BETWEEN 200 and 299)			2 year Graduate SHSS Political Sciences and Int. Relations	1 year Graduate SHSS Political Sciences and Int. Relations		
65	PLS 540	Core Seminar in Comparative Politics	4	8				1 year Graduate SHSS Political Sciences and Int. Relations			
66	PLS 547	Comparative Political Parties	4	8				2 year Graduate SHSS Political Sciences and Int. Relations	1 year Graduate SHSS Political Sciences and Int. Relations		
67	PLS 555	The Politics of Arms in International Relations	4	8				2 year Graduate SHSS Political Sciences and Int. Relations	1 year Graduate SHSS Political Sciences and Int. Relations		
68	PLS 558	International Organization	4	8	PLS 550 Core Seminar in IR (C- and above)			2 year Graduate SHSS Political Sciences and Int. Relations	1 year Graduate SHSS Political Sciences and Int. Relations		
69	PLS 598	MA Thesis for Political Science and International Relations	10	20				2 year Graduate SHSS Political Sciences and Int. Relations			
<b>Sociology and Anthropology</b>											
70	ANT 520	Materiality in Eurasian Society	4	8				2 year Graduate SHSS Political Sciences and Int. Relations			
<b>GSB</b>											
<b>GSB</b>											
71	GSBF 512	Principles of Finance	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
72	GSBF 514	Corporate Finance	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			

73	GSBF 518	Risk Management	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
74	GSBF 519	Financial Reporting and Analysis	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
75	GSBF 521	Ethics, Governance and Regulation	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
76	GSBF 541	Global Finance Experience Residency (I)	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
77	MBA 10	Foundations of Strategy	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
78	MBA 13	Macroeconomics	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
79	MBA 14	Decision Models	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
80	MBA 15	Corporate Finance	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
81	MBA 17	Negotiations	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
82	MBA 20	Practicum Project	2.5	5				2 year Graduate SHSS Political Sciences and Int. Relations			
83	MBAE 13	Raising Capital	3	6				2 year Graduate SHSS Political Sciences and Int. Relations			
84	MBAE 2	Emerging Markets Strategy	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
85	MSF 01	Financial Modeling	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
86	MSF 02	Thesis Preparation Seminar	2	4				2 year Graduate SHSS Political Sciences and Int. Relations			
<b>GSPP</b>											
<b>GSPP</b>											
87	MPA 608	Strategic Management and Leadership	4	8				2 year Graduate SHSS Political Sciences and Int. Relations			
88	MPA 610	National Identity and Public Policy	4	8					GSPP		
89	MPA 611	Benefit Cost Analysis	4	8					GSPP		
90	MPA 617	Law, institutions and development	4	8					GSPP		
91	MPA 624	Public Management Reforms in Transitional Countries	4	8					GSPP		
92	MPA 699	Master's Project with Overseas Component	0	0					GSPP		
93	MPP 602	Macroeconomics and Public Policy	4	8					GSPP		
94	MPP 613	Public Policy Research Design and Analysis	4	8					GSPP		

95	MPP 623	International Political Economy	4	8				2 year GSPP Public Policy	GSPP		
96	MPP 627	Environmental Economics and Public Policy	4	8				2 year GSPP Public Policy	GSPP		
97	MPP 628	Economic Growth in Developing Asia	4	8				2 year GSPP Public Policy	GSPP		
98	MPP 641	Public Management and Leadership	4	8				2 year GSPP Public Policy	GSPP		
99	MPP 685	Urban Planning and Public Policy	4	8				2 year GSPP Public Policy	GSPP		
100	MPP 699	Policy Analysis Exercise with Singapore Component	4	8	MPP 601 Microeconomics and Public Policy (D and above) AND MPP 602 Macroeconomics and Public Policy (D and above) AND MPP 611 Statistical Techniques for Public Policy (D and above) AND MPP 612 Public Policy Research and Evaluation (D and above) AND MPP 613 Public Policy Research Design and Analysis (D and above) AND MPP 621 Introduction to Public Policy and Analysis (D and above) AND MPP 631 Politics and Public Policy (D and above)			2 year GSPP Public Policy	GSPP		
<b>GSE</b>											
<b>GSE</b>											
101	EDHE 610	Applying Educational Leadership in Kazakhstan	3	6				2 year GSPP Public Policy	GSPP		
102	EDHE 692	Thesis Seminar III	1.5	3				2 year GSPP Public Policy	GSPP		
103	EDIE 610	Applying Educational Leadership in Kazakhstan	3	6				2 year GSPP Public Policy	GSPP		
104	EDIE 692	Thesis Seminar III	1.5	3				2 year GSPP Public Policy	GSPP		
105	EDML 611	Plurilingual Individual	3	6				1 year GSE MA in Multil.Educ. (2-year program)			
106	EDML 612	Multilingual Society	3	6				1 year GSE MA in Multil.Educ. (2-year program)			
107	EDML 621	Principles and Methods of Language Education in Multilingual Contexts	3	6				2 year GSE MA in Multil.Educ. (2-year program)			

108	EDML 691	Thesis Research II	6	12				2 year GSE MA in Multil.Educ. (2-year program)			
109	EDSE 610	Applying Educational Leadership in Kazakhstan	3	6				2 year GSE MA in Multil.Educ. (2-year program)			
110	EDSE 620	Perspectives on Inclusive Education	3	6				2 year GSE MA in Multil.Educ. (2-year program)			
111	EDSE 692	Thesis Seminar III	1.5	3				2 year GSE MA in Multil.Educ. (2-year program)			
112	EDUC 504	English for Thesis Writing II	3	6				2 year GSE MA in Multil.Educ. (2-year program)			
113	EDUC 506	Academic English II	1.5	3				1 year GSE Educ.Leadership (2-year program)			
114	EDUC 508	Academic English IV	1.5	3				1 year GSE Educ.Leadership (2-year program)			
115	EDUC 511	Advanced English for Education Professionals II	3	6				1 year GSE MA in Multil.Educ. (2-year program)			
116	EDUC 572	Kazakh for Professional Purposes	3	6				1 year GSE MA in Multil.Educ. (2-year program), 1 year GSE PhD			
117	EDUC 573	Academic Writing in Kazakh	3	6				1 year GSE Educ.Leadership (2-year program), 1 year GSE MA in Multil.Educ. (2-year program), 1 year GSE PhD			
118	EDUC 600	Research Methods II	3	6				1 year GSE Educ.Leadership (2-year program), 1 year GSE MA in Multil.Educ. (2-year program)			
119	EDUC 670	Internship Project	6	12				1 year GSE Educ.Leadership (2-year program)			
120	EDUC 671	Work-based project	6	12				1 year GSE Educ.Leadership (2-year program)			
121	EDUC 675	Learning to Work	4.5	9				1 year GSE Educ.Leadership (2-year program)			
<b>SoM</b>											
<b>Biomedical Sciences</b>											
122	MMMM 507	Critical Analysis of the Contemporary Concepts in Molecular Medicine	3	6				1 year GSE Educ.Leadership (2-year program)			
123	MMMM 508	Molecular Immunology	2	4				1 year GSE Educ.Leadership (2-year program)			
124	MMMM 509	From the Bench to the Bedside: Drug Development and Clinical Trials	3	6				1 year GSE Educ.Leadership (2-year program)			
125	MMMM 510	Natural Medicine	3	6				1 year GSE Educ.Leadership (2-year program)			
126	MMMM 511	Research Methods in Molecular Biomedicine	3	6				1 year GSE Educ.Leadership (2-year program)			



127	MMMM 512	Molecular Basis of Chronic Inflammation	1	2				1 year GSE Educ.Leadership (2-year program)			
<b>Public Health</b>											
128	PUBH 512	Biostatistical Modeling and Sampling	3	6				1 year GSE Educ.Leadership (2-year program)			
129	PUBH 522	Advanced Analytical Epidemiology	3	6				1 year GSE Educ.Leadership (2-year program)			
130	PUBH 561	Graduate Research Seminar I	3	6				1 year GSE Educ.Leadership (2-year program)			
131	PUBH 631	Social and Behavioral Sciences in Public Health	3	6				1 year GSE Educ.Leadership (2-year program)			
132	PUBH 633	Methods in Public Health	3	6				1 year GSE Educ.Leadership (2-year program)			
133	PUBH 682	Master's Project Implementation	12	24				1 year GSE Educ.Leadership (2-year program)			
<b>SMG</b>											
<b>School of Mining and Geosciences</b>											
134	MINE 514	Advanced Surface Mine Design	3	6				1 year GSE Educ.Leadership (2-year program)			
135	MINE 515	Advanced Underground Mine Design	3	6				1 year GSE Educ.Leadership (2-year program)			
136	MINE 516	Advanced Mine Ventilation	3	6				1 year GSE Educ.Leadership (2-year program)			
137	MINE 517	Mine Management and Sustainability	3	6				1 year GSE Educ.Leadership (2-year program)			
138	MSC 616	Research Methods	3	6				1 year GSE Educ.Leadership (2-year program)			