

## Course Requirements and Registration Priorities (Graduate: Master), Fall 2017

#	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 600	MSc Thesis in Chemical Engineering	15	30							
2	MCHE 613	Physical Chemistry of Oil & Gas	1.5	3							
3	MCHE 614	Applied Chemical Engineering Thermodynamics	1.5	3							
4	MCHE 615	Advanced Unit Operations	1.5	3							
5	MCHE 616	Advanced Chemical Reactor Engineering	1.5	3	ECHE 481 Chemical Reaction Engineering (D and above)						
6	MCHE 618	Plant Economics and Planning	1.5	3							
7	MCHE 619	Safety Engineering and Loss Prevention	1.5	3							
<b>Civil Engineering</b>											
8	EMEM 507	Project Management	3	6							
9	EMEM 523	Supply Chain Management	3	6							
10	EMEM 527	Globalization and Engineering	3	6							
11	EMEM 533	Engineering Management and Engineering Economy	3	6							
12	EMEM 537	Engineering Decision Tools	3	6							
13	EMEM 538	Knowledge and Innovation Management	3	6							
14	EMEM 539	Big Data and Information Management	3	6							
15	EMEM 542	Production and Service Operations Management	3	6							
16	MCE 600	MSc Thesis in Civil Engineering	15	30							
17	MCE 601	Sustainable Development	3	6							
18	MCE 604	Advanced Project Management	3	6							
19	MCE 606	Environmental Impacts and Assessments	3	6							

20	MSC 615	Advanced Statistics and Probability	3	6							
21	MSC 616	Research Methods	3	6							
<b>Electrical and Electronic Engineering</b>											
22	MEE 600	MSc Thesis in Electrical and Electronics Engineering	15	30							
23	MEE 607	Statistical Signal Processing	3	6							
24	MEE 608	Special Topics in Circuits Theory	3	6							
25	MEE 622	Modern Control Theory	3	6							
26	MEE 623	Random Processes	3	6							
<b>Mechanical Engineering</b>											
27	MME 600	MSc Thesis in Mechanical Engineering	15	30							
28	MME 604	Engineering Mathematics	3	6							
29	MME 605	Numerical Techniques for Engineers	3	6							
30	MME 606	Advanced Control Systems	3	6							
<b>SST</b>											
<b>Biological Science</b>											
31	BIOL 501	Fundamentals of Biological Sciences	3	6							
32	BIOL 520	Statistical Methods in Life Sciences	3	6							
33	BIOL 600	Graduate Seminar Series	3	6							
34	BIOL 635	Hot Topics in Life Sciences	3	6							
35	BIOL 670	Gene Therapy	3	6							
36	BIOL 690	Research Thesis I	6	12							
<b>Computer Science</b>											
37	CSCI 501	Software Principles and Practice	3	6							
38	CSCI 511	CS Track Core-Theory	3	6							
39	CSCI 525	Quantum Computing	3	6							
40	CSCI 545	Big Data Analytics	3	6							
<b>Mathematics</b>											
41	MATH 517	Scientific Modeling and Simulation with Mathematics	3	6	MATH 273 Linear Algebra with Applications (C- and above) OR MATH 351 Numerical Methods with Applications (C- and above)						

42	MATH 540	Statistical Learning I	3	6	MATH 322 Mathematical Statistics (C- and above) OR (MATH 310 Applied Statistical Methods (C- and above) AND MATH 273 Linear Algebra with Applications (C- and above))						
<b>Physics</b>											
43	PHYS 505	Classical Mechanics	3	6							
44	PHYS 511	Computational Modeling and Simulation	3	6							
45	PHYS 515	Classical Electrodynamics	3	6							
46	PHYS 545	Advanced Instrumentation Methods	3	6							
47	PHYS 550	Advanced Mathematical Physics	3	6							
48	PHYS 574	Lasers and Photonics	3	6							
49	SST 501	Teaching and Learning	3	6							
50	SST 503	Laboratory Practicum	3	6	SST 501 Teaching and Learning (C- and above) AND SST 502 Teaching Practicum (C- and above)						
51	SST 591	Research Methods	3	6							
52	SST 693	Thesis Proposal	3	6	SST 591 Research Methods (C- and above)						
<b>Robotics and Mechatronics</b>											
53	ROBT 501	Robot Manipulation and Mobility	3	6							
54	ROBT 503	Dynamic Systems and Control	3	6							
55	ROBT 611	Industrial Robotics	3	6	ROBT 501 Robot Manipulation and Mobility (C- and above) AND CSCI 501 Software Principles and Practice (C- and above)						
56	ROBT 613	Brain-Machine Interfaces	3	6							
<b>SHSS</b>											
<b>Area Studies</b>											
57	EAS 500	Introduction to Eurasia	4	8				Eurasian Studies	SHSS, SST		
58	EAS 501	General Methodology	4	8				Eurasian Studies	SHSS, SST		

59	EAS 503	Thesis I	7.5	15	EAS 500 Introduction to Eurasia (C- and above) AND EAS 501 General Methodology (C- and above) AND EAS 502 Disciplinary Methodology (C- and above)			2 year Gr SHSS Eurasian Studies			
<b>Area Studies, Political Science and International Relations, Sociology and Anthropology</b>											
60	SOC 514/PLS 514/EAS 506	Qualitative Research Methods	4	8				Eurasian Studies	SHSS, SST		
<b>Economics</b>											
61	ECON 501	Microeconomics I	4	8				1 year Gr SHSS Economics	SHSS, SST		
62	ECON 502	Macroeconomics I	4	8				1 year Gr SHSS Economics	SHSS, SST		
63	ECON 503	Introduction to Contract Theory and Auctions	4	8				2 year Gr SHSS Economics	SHSS, SST		
64	ECON 505	Behavioral and Experimental Economics	4	8				2 year Gr SHSS Economics	SHSS, SST		
65	ECON 511	Statistics	4	8				1 year Gr SHSS Economics	SHSS, SST		
66	ECON 512	Mathematical Economics	4	8				1 year Gr SHSS Economics	SHSS, SST		
67	ECON 515	Industrial Organization	4	8	ECON 531 Econometrics (C- and above)			2 year Gr SHSS Economics	SHSS, SST		
68	ECON 516	Empirical Industrial Organization	4	8	ECON 501 Microeconomics I (C- and above) AND ECON 531 Econometrics (C- and above)			2 year Gr SHSS Economics	SHSS, SST		
69	ECON 532	Applied Econometrics	4	8				2 year Gr SHSS Economics	SHSS, SST		
70	ECON 589	Thesis I	4	8				2 year Gr SHSS Economics	SHSS, SST		
<b>History, Philosophy and Religious Studies</b>											
71	HST 523	Orthodox Christianity in Modern and Revolutionary Russia	4	8				SHSS, SST			
72	REL 510	Buddhism in Central Asia	4	8				Eurasian Studies	SHSS, SST		
<b>Political Science and International Relations</b>											
73	PLS 511	Advanced Research I	4	8				1 year Gr SHSS Political Sciences and Int. Relations	SHSS, SST		

74	PLS 512	Scientific Research in International Relations	4	8	PLS 511 Advanced Research I (C- and above) AND PLS 510 Advanced Research II (C- and above) AND PLS 550 Core Seminar in IR (C- and above)			2 year Gr SHSS Political Sciences and Int. Relations	SHSS, SST		
75	PLS 513	Research and Writing in Political Science	4	8				2 year Gr SHSS Political Sciences and Int. Relations			
76	PLS 521	Theories of Political Obligations	4	8				1 year Gr SHSS Political Sciences and Int. Relations	SHSS, SST		
77	PLS 522	Just War Theory	4	8				1 year Gr SHSS Political Sciences and Int. Relations	SHSS, SST		
78	PLS 541	Advanced Topics in Comparative Politics	4	8				2 year Gr SHSS Political Sciences and Int. Relations	SHSS, SST		
79	PLS 545	Political Violence	4	8				2 year Gr SHSS Political Sciences and Int. Relations	SHSS, SST		
80	PLS 550	Core Seminar in IR	4	8				1 year Gr SHSS Political Sciences and Int. Relations	SHSS, SST		
81	PLS 565	Politics of International Finance	4	8				2 year Gr SHSS Political Sciences and Int. Relations	SHSS, SST		
82	PLS 569	International Relations of Eurasia	4	8				2 year Gr SHSS Political Sciences and Int. Relations	SHSS, SST		
<b>GSB</b>											
<b>GSB</b>											
83	EMBAE 700	Entrepreneurial Finance	2.5	5							
84	GSBF 501	Team Building and Business Communications	1	2							
85	GSBF 511	Statistical Methods	2	4							
86	GSBF 512	Principles of Finance	2	4							
87	GSBF 513	Financial Econometrics	2	4							
88	GSBF 515	Investments	2	4							
89	GSBF 516	Financial Markets and Institutions	2	4							
90	GSBF 517	Financial Economics	2	4							
91	MBA 01	Consequential Leadership	1	2							
92	MBA 02	Business Mathematics and Business Computer Application	1	2							

93	MBA 03	Financial Accounting	2	4							
94	MBA 04	Probability and Statistics	2	4							
95	MBA 05	Business Communication	2	4							
96	MBA 07	Managerial Effectiveness	2	4							
97	MBA 08	Managerial Economics	2	4							
98	MBA 09	Marketing Management	2	4							
99	MBA 17	Negotiations	2	4							
100	MBA 19	Distinguished Speaker Series	0	1							
101	MBA 20	Practicum Project	2.5	5							
102	MBAE 12	Data Analytics for Business	2	4							
103	MBAE 6	International Finance	2	4							
104	MBAE 9	Marketing Strategy	2	4							
<b>GSPP</b>											
<b>GSPP</b>											
105	MPA 602	Public Administration in Theory and Practice	4	8							
106	MPA 603	Economic Applications for Public Managers	4	8							
107	MPA 605	Research Methods for Decision Making	4	8							
108	MPA 618	Current Issues in Macroeconomic Policy	4	8					-, 2 year GSPP Public Administration, 2 year GSPP Public Policy	Economics, Eurasian Studies, Political Science and International Relations	
109	MPA 619	Contemporary Issues in Foreign Policy	4	8					-, 2 year GSPP Public Administration, 2 year GSPP Public Policy	Economics, Eurasian Studies, Political Science and International Relations	
110	MPA 622	Public Policy and Economics of Health Systems	4	8					-, 2 year GSPP Public Administration, 2 year GSPP Public Policy	Economics, Eurasian Studies, Political Science and International Relations	
111	MPA 684	Selected Topics on Global Energy Policy	4	8					-, 2 year GSPP Public Administration, 2 year GSPP Public Policy	Economics, Eurasian Studies, Political Science and International Relations	
112	MPA 699	Master's Project with Overseas Component	0	0							
113	MPP 601	Microeconomics and Public Policy	4	8							
114	MPP 611	Statistical Techniques for Public Policy	4	8							

115	MPP 612	Public Policy Research and Evaluation	4	8							
116	MPP 621	Introduction to Public Policy and Analysis	4	8							
117	MPP 625	Central Asian politics: Comparative Analysis	4	8					-, 2 year GSPP Public Administration, 2 year GSPP Public Policy	Economics, Eurasian Studies, Political Science and International Relations	
118	MPP 626	International Political Economy of Energy and Climate Change	4	8					-, 2 year GSPP Public Administration, 2 year GSPP Public Policy	Economics, Eurasian Studies, Political Science and International Relations	
119	MPP 631	Politics and Public Policy	4	8							
120	MPP 632	Public International Law	4	8					-, 2 year GSPP Public Administration, 2 year GSPP Public Policy	Economics, Eurasian Studies, Political Science and International Relations	
121	MPP 636	Weapons of Mass Destruction Nonproliferation and Disarmament	4	8					-, 2 year GSPP Public Administration, 2 year GSPP Public Policy	Economics, Eurasian Studies, Political Science and International Relations	
122	MPP 671	Game Theory and Public Policy	4	8					-, 2 year GSPP Public Administration, 2 year GSPP Public Policy	Economics, Eurasian Studies, Political Science and International Relations	
123	MPP 682	Sustainable Development and Environmental Governance	4	8	MPP 601 Microeconomics and Public Policy (D and above)				-, 2 year GSPP Public Administration, 2 year GSPP Public Policy	Economics, Eurasian Studies, Political Science and International Relations	
<b>GSE</b>											
<b>GSE</b>											
124	EDHE 609	Introduction to Educational Leadership: Higher Education	3	6							
125	EDHE 621	Education Policy Analysis and Development	3	6							
126	EDHE 642	Globalisation and higher education	3	6							
127	EDHE 649	Fundamentals of Higher Education	3	6							
128	EDHE 691	Thesis Seminar II	3	6							
129	EDIE 609	Introduction to Educational Leadership: Inclusive Education	3	6							
130	EDIE 621	Education Policy Analysis and Development	3	6							

131	EDIE 624	Psychology of Learning (Children as Learners)	3	6							
132	EDIE 691	Thesis Seminar II	3	6							
133	EDML 601	Introduction to Linguistics	3	6							
134	EDML 610	Foundations of Multilingual Education	3	6							
135	EDML 613	The Multilingual School	3	6							
136	EDML 614	Multilingual curriculum development and assessment	3	6							
137	EDML 623	Globalization and Language Education	3	6							
138	EDML 630	Language Policy and Education Reform Across Contexts	3	6							
139	EDML 690	Thesis Research I	3	6							
140	EDSE 609	Introduction to Educational Leadership: School Education	3	6							
141	EDSE 620	Perspectives on Inclusive Education	3	6							
142	EDSE 632	School Improvement and Effectiveness	3	6							
143	EDSE 634	Assessment: Theories, policies, practices	3	6							
144	EDSE 636	Preparing Children for the Future: Skills and Employability	3	6							
145	EDSE 691	Thesis Seminar II	3	6							
146	EDUC 502	English for Research	3	6							
147	EDUC 505	Academic English 1	1.5	3							
148	EDUC 507	Academic English III	1.5	3							
149	EDUC 510	Advanced English for Education Professionals I	3	6							
150	EDUC 571	Basic Kazakh	3	6							
151	EDUC 600	Research Methods I	3	6							
152	EDUC 600	Research Methods (Part I)	1.5	3							
153	EDUC 602	Educational Context and Reform in Kazakhstan	3	6							
<b>Other</b>											
<b>GSPP</b>											
154	T-PP 5178	Leadership and Decision-Making Skills	4	8							
155	T-PP 5196	Education Economics and Policy	4	8							
156	T-PP 5203	Behavioral Economics and Public Policy	4	8							
157	T-PP 5215	Changes in Singapore Political Economy	4	8							



158	T-PP 5267	Urban Transport Policy: A Global View	4	8						
159	T-PP 5269	Environmental Economics and Public Policy	4	8						
160	T-PP 5298	Singapore's Development Experience	4	8						
<b>SoM</b>										
<b>Biomedical Sciences</b>										
161	MMMM 501	Molecular Basis of Infection	3	6						
162	MMMM 502	Molecular Pathology of Cancer	3	6						
163	MMMM 503	Bioethics in Research: Principles and Practice	3	6						
164	MMMM 504	Molecular Basis of Genetic Disease	3	6						
165	MMMM 505	Inferential Biostatistics	2	4						
166	MMMM 506	Biocomputing	1	2						
<b>Public Health</b>										
167	PUBH 501	Principles of Public Health Problem Solving	3	6						
168	PUBH 511	Inferential Biostatistics	3	6						
169	PUBH 521	Principles of Analytical Epidemiology	3	6						
170	PUBH 528	Qualitative Research Methods	3	6						
171	PUBH 531	Emerging Infectious Diseases	3	6						
172	PUBH 551	Health Services Management, Health Economic and Health Policy	3	6						
173	PUBH 601	Health Education and Promotion	3	6						
174	PUBH 641	Problem Investigations in Environmental Health	3	6						
175	PUBH 662	Graduate Research Seminar II	3	6						
176	PUBH 681	Master's Project Planning	3	6						
<b>SMG</b>										
<b>Mining Engineering</b>										
177	MINE 500	Foundations of Mining	3	6						
178	MINE 511	Applied Geostatistics	3	6						
179	MINE 512	Geology for Mining Engineers	3	6						
180	MINE 513	Rock Excavation Methods	3	6						
181	MINE 518	Advanced Rock Mechanics	3	6						