Course Requirements and Registration Priorities
Fall 2018

#	Abbr	Title	Cr(US)	Cr(ECTS)	PreRequisite	CoRequisite	AntiRequisite	1st priority registration	2nd priority registration	3rd priority registration	4th priority registration
SHSS											
Kazakh Language and Turkic Studies											
1	KAZ 358	Technique of Translation	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
CPS											
NUFYP											
2	FBIO 011	Introduction to Biology	0	0							
3	FBUS 011	Introduction to Business	0	0							
4	FCHM 011	Introduction to Chemistry	0	0							
5	FEAP 001	English for Academic Purposes	0	0							
6	FGEO 011	Introduction to Geography	0	0							
7	FHUM 011	Introduction to Humanities and Social Science	0	0							
8	FMATH 001	Mathematics	0	0							
9	FPHY 011	Introduction to Physics	0	0							
NUZYP											
10	ZCOM 040	Academic Communications for Graduate Studies I	0	0							
11	ZRDG 030	Academic Reading for Graduate Studies I	0	0							
12	ZWRT 020	Academic Writing for Graduate Studies I	0	0							
GSB											
Economics											
13	ECON 101	Introduction to Microeconomics	3	6				1 year UG SHSS	2 year UG SHSS	SEng, SHSS, SMG, SST	
14	ECON 102	Introduction to Macroeconomics	3	6				1 year UG SHSS	2 year UG SHSS	SEng, SHSS, SMG, SST	
15	ECON 201	Intermediate Microeconomics	3	6	ECON 101 Introduction to Microeconomics (379) (B- and above) AND (MATH 161 Calculus I (118) (B- and above) OR MATH 162 Calculus II (170) (B- and above))			Economics	SHSS	SEng, SMG, SST	

16	ECON 202	Intermediate Macroeconomics	3	6	ECON 102 Introduction to Macroeconomics (503) (B- and above) AND (MATH 161 Calculus I (118) (B- and above) OR MATH 162 Calculus II (170) (B- and above))			Economics	SHSS	SEng, SMG, SST	
17	ECON 211	Economic Statistics	3	6	ECON 101 Introduction to Microeconomics (379) (C and above) OR ECON 102 Introduction to Macroeconomics (503) (C and above)			Economics	SHSS	SEng, SMG, SST	
18	ECON 301	Econometrics I	3	6	ECON 211 Economic Statistics (2280) (C- and above) OR (MATH 321 Probability (482) (C- and above) AND (MATH 322 Mathematical Statistics (1165) (C- and above) OR MATH 310 Applied Statistical Methods (82) (C- and above)))			Economics	SHSS	SEng, SMG, SST	
19	ECON 302	Game Theory and Economic Analysis	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above) OR ECON 101 Introduction to Microeconomics (379) (C- and above) AND MATH 251 Discrete Mathematics (85) (C- and above)		PLS 315 Political Game Theory (704) (C- and above)	Economics	SHSS	SEng, SMG, SST	
20	ECON 321	Economic Growth	3	6	ECON 202 Intermediate Macroeconomics (207) (C- and above)			Economics	SHSS	SEng, SMG, SST	
21	ECON 325	International Trade	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			Economics	SHSS	SEng, SMG, SST	
22	ECON 326	The Economics of Financial Markets	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			Economics	SHSS	SEng, SMG, SST	
23	ECON 328	Labor Economics	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			Economics	SHSS	SEng, SMG, SST	
24	ECON 341	Economic Simulation Modeling	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			Economics	SHSS	SEng, SMG, SST	
25	ECON 399	Independent Study in Economics	3	6							

26	ECON 405	Behavioral and Experimental Economics	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above) AND ECON 301 Econometrics I (664) (C- and above)			Economics	SHSS	SEng, SMG, SST	
27	ECON 413	Econometrics II	3	6	ECON 301 Econometrics I (664) (C- and above)			Economics	SHSS	SEng, SMG, SST	
28	ECON 416	Empirical Industrial Organization	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above) AND ECON 301 Econometrics I (664) (C- and above)			Economics	SHSS	SEng, SMG, SST	
29	ECON 501	Microeconomics I	4	8				1 year Gr SHSS Economics	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
30	ECON 502	Macroeconomics I	4	8				1 year Gr SHSS Economics	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
31	ECON 505	Behavioral and Experimental Economics	4	8				2 year Gr SHSS Economics	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
32	ECON 511	Statistics	4	8				1 year Gr SHSS Economics	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
33	ECON 512	Mathematical Economics	4	8				1 year Gr SHSS Economics	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
34	ECON 516	Empirical Industrial Organization	4	8	ECON 501 Microeconomics (2187) (C- and above) AND ECON 531 Econometrics (2505) (C- and above)			2 year Gr SHSS Economics	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
35	ECON 532	Applied Econometrics	4	8				2 year Gr SHSS Economics	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
36	ECON 589	Thesis I	4	8				2 year Gr SHSS Economics			
GSB											
37	GSBF 501	Team Building and Business Communications	1	2							
38	GSBF 511	Statistical Methods	2	4							
39	GSBF 512	Principles of Finance	2	4							
40	GSBF 516	Financial Markets and Institutions	2	4							
41	GSBF 535	Insurance and Actuarial Science	2	4							
42	GSBF 550	Master’s Thesis	9	18							
43	MBA 01	Consequential Leadership	1	2							

44	MBA 02	Business Mathematics and Business Computer Application	1	2							
45	MBA 03	Financial Accounting	2	4							
46	MBA 04	Probability and Statistics	2	4							
47	MBA 05	Business Communication	2	4							
48	MBA 07	Managerial Effectiveness	2	4							
49	MBA 09	Marketing Management	2	4							
50	MBA 16	Entrepreneurship	2	4							
51	MBA 19	Distinguished Speaker Series	0	1							
52	MBA 20	Practicum Project	2.5	5							
53	MBAE 5	Competitive Analysis	2	4							
54	MBAE 6	International Finance	2	4							
55	MBAE 7	Supply Chain Management	2	4							
56	MBAE 9	Marketing Strategy	2	4							
57	MSF 01	Financial Modeling	2	4							
58	MSF 03	Advanced Econometrics	2	4							
59	MSF 04	Venture Capital	2	4							
GSPP											
Master in Public Administration											
60	MPA 602	Public Administration in Theory and Practice	4	8							
61	MPA 603	Economic Applications for Public Managers	4	8							
62	MPA 605	Research Methods for Decision Making	4	8							
63	MPA 617	Institutions and development policies	4	8				2 year GSPP Public Policy	GSPP	GSB, GSE, SEng, SHSS, SMG, SST, SoM	
64	MPA 622	Public Policy and Economics of Health Systems	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEng, SHSS, SMG, SST, SoM	
65	MPA 623	Comparative Constitutional Law	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEng, SHSS, SMG, SST, SoM	
66	MPA 625	Ethics and Public Policy	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEng, SHSS, SMG, SST, SoM	

67	MPA 637	Comparative Policy-Making and Public Policy	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEng, SHSS, SMG, SST, SoM	
68	MPA 639	International Financial Policy	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEng, SHSS, SMG, SST, SoM	
69	MPA 685	Water Resources Policy and Management	4	8				2 year GSPP Public Administration	GSPP	GSB, GSE, SEng, SHSS, SMG, SST, SoM	
70	MPA 699	Master's Project with Overseas Component	6	12							
71	MPP 670	Behavioral Economics and Public Policy	4	8				2 year GSPP Public Policy	GSPP	GSB, GSE, SEng, SHSS, SMG, SST, SoM	
Master in Public Policy											
72	MPP 601	Microeconomics and Public Policy	4	8							
73	MPP 611	Statistical Techniques for Public Policy	4	8							
74	MPP 612	Public Policy Research and Evaluation	4	8							
75	MPP 621	Introduction to Public Policy and Analysis	4	8							
76	MPP 625	Central Asian politics: Comparative Analysis	4	8				2 year GSPP Public Policy	GSPP	GSB, GSE, SEng, SHSS, SMG, SST, SoM	
77	MPP 631	Politics and Public Policy	4	8							
78	MPP 687	Science, Technology, and Public Policy	4	8				2 year GSPP Public Policy	GSPP	GSB, GSE, SEng, SHSS, SMG, SST, SoM	
PhD in Public Policy											
79	DPP 601	Microeconomics in the Public Sector	4	8							
80	DPP 603	Public Administration and Management	4	8							
81	DPP 611	Statistics in Public Policy	4	8							
82	DPP 614	Advanced Quantitative Methods	4	8							
83	DPP 616	Advanced Qualitative Methods	4	8							
84	DPP 621	Public Policy and Analysis	4	8							

85	DPP 625	Ethics and Public Policy	4	8				Public Policy			
86	DPP 637	Comparative Policy-Making and Public Policy	4	8				Public Policy			
87	DPP 639	International Financial Policy	4	8				Public Policy			
88	DPP 670	Behavioral Economics and Public Policy	4	8				Public Policy			
GSE											
MA in Multilingual Education											
89	EDML 601	Introduction to Linguistics	3	6				1 year GSE MA in Multil.Education			
90	EDML 610	Foundations of Multilingual Education	3	6				1 year GSE MA in Multil.Education			
91	EDML 613	The Multilingual School	3	6				2 year GSE MA in Multil.Education			
92	EDML 620	Language and Literacy Development	3	6				2 year GSE MA in Multil.Education			
93	EDML 690	Thesis Research I	3	6				2 year GSE MA in Multil.Education			
MSc Educational Leadership HE											
94	EDHE 609	Introduction to Educational Leadership: Higher Education	3	6				1 year GSE Educ.Leadership			
95	EDHE 610	Applying Educational Leadership in Kazakhstan	3	6				1 year GSE Educ.Leadership			
96	EDHE 691	Thesis Seminar II	3	6				2 year GSE Educ.Leadership			
97	EDUC 505	Academic English 1	1.5	3				1 year GSE Educ.Leadership			
98	EDUC 507	Academic English III	1.5	3				2 year GSE Educ.Leadership			
99	EDUC 510	Advanced English for Education Professionals I	3	6				1 year GSE MA in Multil.Education			
100	EDUC 512	English for Thesis Writing I	3	6				2 year GSE MA in Multil.Education			
101	EDUC 571	Basic Kazakh	3	6				1 year GSE Educ.Leadership			
102	EDUC 572	Kazakh for Professional Purposes	3	6				2 year GSE Educ.Leadership			
103	EDUC 590	Academic English Writing for Doctoral Students I	1.5	3				1 year GSE PhD Education			
104	EDUC 591	Academic English Writing for Doctoral Students II	3	6				2 year GSE PhD Education			

105	EDUC 600	Research Methods I	3	6				1 year GSE Educ.Leadership, 1 year GSE MA in Multil.Education			
106	EDUC 602	Educational Context and Reform in Kazakhstan	3	6				1 year GSE Educ.Leadership, 1 year GSE MA in Multil.Education			
107	EDUC 701	Education Research Methods	3	6				1 year GSE PhD Education			
108	EDUC 709	Introduction to Scholarship in Education	3	6				1 year GSE PhD Education			
109	EDUC 712	Educational Policy and Reform	3	6				1 year GSE PhD Education			
110	EDUC 720	Philosophy of Education	3	6				1 year GSE PhD Education			
111	EDUC 740	Doctoral Seminar	3	6				For PhD in Education, Year 3. Registration by School Admin			
112	EDUC 750	Dissertation Research	9	18				For PhD in Education, Year 3. Registration by School Admin			
113	EDUC 800	International Study	12	24				2 year GSE PhD Education			
MSc Educational Leadership IE											
114	EDIE 609	Introduction to Educational Leadership: Inclusive Education	3	6				1 year GSE Educ.Leadership			
115	EDIE 651	Inclusive Education: Policy Perspectives	3	6				1 year GSE Educ.Leadership			
116	EDIE 652	Curriculum Design: perspectives on Addressing Barriers to Teaching and Learning (Including SEN)	3	6				1 year GSE Educ.Leadership			
117	EDIE 691	Thesis Seminar II	3	6				2 year GSE Educ.Leadership			
MSc Educational Leadership SE											
118	EDSE 609	Introduction to Educational Leadership: School Education	3	6				1 year GSE Educ.Leadership			
119	EDSE 636	Preparing Children for the Future: Skills and Employability	3	6				1 year GSE Educ.Leadership			
120	EDSE 637	Student Discourse and Argumentation: Theories, Practices and Policies	3	6				1 year GSE Educ.Leadership			
121	EDSE 691	Thesis Seminar II	3	6				2 year GSE Educ.Leadership			

Other											
Other											
122	T- 16673	Economic History of the World	3	6							
123	T- 17289	Literature and Culture of English Speaking	3	6							
124	T- 17312	Literature and Gender in English	3	6							
125	T- 17328	European Literatures	3	6							
126	T- 18271	Econometrics I	3	6							
127	T- 18299	Organizations Sociology	3	6							
128	T- 18620	World System: Colonialism and Post-Colonialism	3	6							
129	T- 18620	Intercultural Communication	3	6							
130	T-1C 90011	Japanese Culture	1	2							
131	T-1C 90031	Career Design I	1.5	3							
132	T-BC 51541	English Discussion Seminar (D)	2	4							
133	T-CMD 17	Computer and Data Processing	1.5	3							
134	T-DECISION 618	Data Analytics for Business	3	6							
135	T-E&E 17	Energetics and Environment	3	6							
136	T-EG 11442	English Communication for Biology I	1	2							
137	T-EG 32131	Chemical Ecology	2	4							
138	T-EG 34221	Metabolic and Physiological Chemistry II	1.5	3							
139	T-EG 35031	Molecular Developmental Genetics	1.5	3							
140	T-EG 35131	Molecular Biology III	2	4							
141	T-EG 38131	Vertebrate Evolution	1.5	3							
142	T-ENL 17	Culture and Business Environment (English)	1.5	3							
143	T-FRL 17	French Language	1.5	3							
144	T-HE 40131	Clinical Hematology	3	6							
145	T-ITR 17	Introduction to Research/Embedded System	1.5	3							
146	T-MARKETNG 797	Consumer Behavior	3	6							
147	T-MAS 17	Material Science	3	6							
148	T-MAT 17	Mathematics	2	4							

149	T-MEC 17	Mechanics	1.5	3								
150	T-MP 30GB	Managing Global Business Projects	3	6								
151	T-MP 31	Information Supply Chain	1.5	3								
152	T-PP 5144	Decision and Game Theory for Public Managers	4	8								
153	T-PP 5168	Public Service Leadership	4	8								
154	T-PP 5178	Leadership and Decision-Making Skills	4	8								
155	T-PP 5191	Public Administration, Technology and Innovation	4	8								
156	T-PP 5196	Education Economics and Policy	4	8								
157	T-PP 5203	Behavioral Economics and Public Policy	4	8								
158	T-PP 5216	Economic Growth in Developing Asia	4	8								
159	T-PP 5267	Urban Transport Policy: A Global View	4	8								
160	T-PP 5298	Singapore's Development Experience	4	8								
161	T-PP 5511	Systemic and Integrated Policy Design and Analysis	4	8								
162	T-ROB 17	Robotics	1.5	3								
163	T-SCE 17	Civil and Environmental Engineering	1	2								
164	T-SPI 17	Basics of Signal Processing and Imaging Methods	1.5	3								
165	T-STR 17	Control Systems	2	4								
SoM												
Biological Science												
166	BIOL 101	Biology for non-Science majors	3	6			BIOL 110 Modern Biology I (1070) (C- and above)	SEng, SHSS, SMG				
167	BIOL 110	Modern Biology I with Lab	4	8				Biological Sciences, Chemistry	SST	SHSS		
168	BIOL 230	Human Anatomy and Physiology I	4	8	BIOL 110 Modern Biology I (107) (C and above) OR BIOL 110 Modern Biology I (1070) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG		

169	BIOL 305	Introduction to Microbiology with Lab	4	8	BIOL 110 Modern Biology I (1070) (C and above) AND BIOL 120 Modern Biology II (1195) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
170	BIOL 320	Developmental Biology	3	6	BIOL 230 Human Anatomy and Physiology I (72) (C and above) OR BIOL 230 Human Anatomy and Physiology I (6217) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
171	BIOL 340	Introduction to Bioinformatics with Lab	4	8	(BIOL 120 Modern Biology II (1195) (C and above) OR (BIOL 120 Modern Biology II (1195) (C and above) AND BIOL 120L Modern Biology II Laboratory (5443) (C and above))) AND MATH 310 Applied Statistical Methods (82) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
172	BIOL 352	Biology of Cancer	3	6	BIOL 231 Human Anatomy and Physiology II (479) (C and above) OR BIOL 301 Molecular Biology of Cell with Lab (1197) (C and above) OR BIOL 331 Human Anatomy and Physiology II (6218) (C and above) OR BIOL 301 Molecular Cell Biology (5809) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
173	BIOL 355	Critical Research Reasoning	3	6	BIOL 120 Modern Biology II (1195) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
174	BIOL 385	The cell signaling: principles and mechanisms	3	6	BIOL 120 Modern Biology II (1195) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
175	BIOL 410	Introduction to Immunology	3	6	BIOL 301 Molecular Biology of Cell with Lab (1197) (C and above) OR BIOL 305 Introduction to Microbiology with Lab (1642) (C and above) OR BIOL 301 Molecular Cell Biology (5809) (C and above) OR BIOL 305 Introduction to Microbiology (5789) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	

176	BIOL 455	Biotechnology	3	6	BIOL 301 Molecular Biology of Cell with Lab (1197) (C- and above) OR (BIOL 301 Molecular Cell Biology (5809) (C- and above) AND BIOL 301L Molecular Cell Biology Laboratory (5678) (C- and above))			Biological Sciences	SST	SEng, SHSS, SMG	
177	BIOL 470	Advanced Cell Biology	3	6	BIOL 120 Modern Biology II (1195) (C and above) AND BIOL 110L Modern Biology I Laboratory (5448) (C and above) AND (BIOL 341 Biochemistry I (2002) (C and above) OR CHEM 341 Biochemistry I (1058) (C and above))			Biological Sciences	SST	SEng, SHSS, SMG	
178	BIOL 490	Graduation Project 1	4	8	BIOL 355 Critical Research Reasoning (1000) (B and above)			Through Add form only			
179	BIOL 492	Directed study in Biology	3	6				Through Add form only			
180	BIOL 520	Statistical Methods in Life Sciences	3	6							
181	BIOL 550	Structural and Molecular Biology in Health and Disease	3	6							
182	BIOL 560	Molecular Biology of Prokaryotic Cells	3	6							
183	BIOL 600	Graduate Seminar Series	3	6							
184	BIOL 623	Advanced Immunology	3	6				Biological Sciences	SST, Science, Engineering and Technology	SEng, SHSS	
185	BIOL 635	Hot Topics in Life Sciences	3	6							
186	BIOL 670	Gene Therapy	3	6				Biological Sciences	SST, Science, Engineering and Technology	SEng, SHSS	
187	BIOL 690	Research Thesis I	6	12							
MMM											
188	MMMM 501	Molecular Basis of Infection	3	6							
189	MMMM 505	Inferential Biostatistics	2	4							
190	MMMM 506	Biocomputing	1	2							
191	MMMM 513	Molecular Basis of Neurological Disorders	3	6							
192	MMMM 604	Nutrigenomics	1.5	3							
Master of Sciences in Biomedicine											

193	MMMM 502	Molecular Pathology of Cancer	3	6							
194	MMMM 504	Molecular Basis of Genetic Disease	3	6							
195	MMMM 603	Recombinant Drugs	3	6							
196	MMMM 605	Developmental Biology	1.5	3							
Nursing											
197	NUR 401	Education: Principles and Practice for Teaching in Nursing	4	8							
198	NUR 403	Data Analytics for Quality Improvement in Healthcare	3	6							
199	NUR 404	Community and Home Health Nursing	4	8							
200	NUR 406.1	Medical-Surgical Nursing: Complex Surgical Management	4	8							
Public Health											
201	PUBH 501	Principles of Public Health Problem Solving	3	6							
202	PUBH 510	Inferential Biostatistics	1.5	3	MMMM 505 Inferential Biostatistics (3839) (C and above)						
203	PUBH 511	Inferential Biostatistics	3	6							
204	PUBH 521	Principles of Analytical Epidemiology	3	6							
205	PUBH 528	Qualitative Research Methods	3	6							
206	PUBH 531	Emerging Infectious Diseases	3	6							
207	PUBH 551	Health Services Management, Health Economic and Health Policy	3	6							
208	PUBH 601	Health Education and Promotion	3	6							
209	PUBH 641	Problem Investigations in Environmental Health	3	6							
210	PUBH 662	Graduate Research Seminar II	3	6							
211	PUBH 681	Master’s Project Planning	3	6							
SSH											
Academic Success Centre, Communication and Composition											
212	SHSS 150	Rhetoric and Composition	3	6				1 year UG SENG, 1 year UG SMG, 1 year UG SST	1 year UG SHSS, 2 year UG SENG, 2 year UG SHSS, 2 year UG SST	SEng, SHSS, SMG, SST	

Area Studies											
213	EAS 500	Introduction to Eurasia	4	8				Eurasian Studies	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
214	EAS 501	General Methodology	4	8				Eurasian Studies	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
215	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 SHSS Eurasian Studies			
216	EAS 511	Independent Study in Eurasian Studies	4	8							
Area Studies, Political Science and International Relations, Sociology and Anthropology											
217	EAS 506/PLS 514/SOC 514	Qualitative Research Methods	4	8				Eurasian Studies	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
Chemistry											
218	CHEM 090	Chemistry for Non-Science majors	3	6				SHSS			
219	CHEM 091	Survey of Physical Science	3	6				SHSS			
220	CHEM 101	General Chemistry I	3	6				Biological Sciences, Chemistry, SMG	SST	SEng, SHSS	
221	CHEM 101L	General Chemistry I lab	1	2		CHEM 101 General Chemistry I (113) (C and above)		Biological Sciences, Chemistry, SMG	SST	SEng, SHSS	
222	CHEM 211	Organic Chemistry I	3	6	CHEM 102 General Chemistry II (232) (C and above)			Chemistry	Biological Sciences	SST	
223	CHEM 211L	Organic Chemistry I Lab	2	4	CHEM 101L General Chemistry I lab (179) (C and above)	CHEM 211 Organic Chemistry I (154) (C and above)		Chemistry	Biological Sciences	SST	
224	CHEM 212	Organic Chemistry II	3	6	CHEM 211 Organic Chemistry I (154) (C and above) OR CHEM 191 Chemistry I for Engineers (1908) (C and above)			Chemistry	Biological Sciences	SST	
225	CHEM 220	Quantitative Chemical Analysis with lab	4	8	CHEM 102 General Chemistry II (232) (C and above)			Chemistry	Biological Sciences	SST	

226	CHEM 331	Physical Chemistry I	3	6	CHEM 220 Quantitative Chemical Analysis (555) (C and above) AND PHYS 161 Physics I for Scientists and Engineers with Laboratory (116) (C and above)			Chemistry	Biological Sciences	SST	
227	CHEM 331L	Physical Chemistry Lab	1	2		CHEM 331 Physical Chemistry I (634) (C and above)		Chemistry	Biological Sciences	SST	
228	CHEM 341	Biochemistry I	3	6	CHEM 211 Organic Chemistry I (154) (C and above)			Chemistry	Biological Sciences	SST	
229	CHEM 341L	Biochemistry I Lab	1	2	CHEM 212L Organic Chemistry II Lab (444) (C and above)	CHEM 341 Biochemistry I (1058) (C and above)		Chemistry	Biological Sciences	SST	
230	CHEM 350	Descriptive Inorganic Chemistry	3	6	CHEM 101 General Chemistry I (113) (C and above)			Chemistry	Biological Sciences	SST	
231	CHEM 400	Chemistry Seminar	3	6	CHEM 380 Research Methods (636) (C and above)			Chemistry	Biological Sciences	SST	
232	CHEM 410	Structural Spectroscopy	4	8	CHEM 212 Organic Chemistry II (443) (C and above)			Chemistry	Biological Sciences	SST	
233	CHEM 450	Advanced Inorganic Chemistry	4	8	CHEM 212 Organic Chemistry II (443) (C and above) AND CHEM 212L Organic Chemistry II Lab (444) (C and above) AND CHEM 250 Descriptive Inorganic Chemistry (445) (C and above)			Chemistry	Biological Sciences	SST	
234	CHEM 471	Environmental Chemistry	3	6	CHEM 102 General Chemistry II (232) (C and above)			Chemistry	Biological Sciences	SST	
Communication and Composition											
235	SHSS 240	Writing for Digital Media	3	6	WCS 150/ASC 100 Advanced English for Academic Purposes (2183) (C- and above)			SHSS	SEng, SMG, SST		

236	SHSS 390	Writing Fellows I – Composition and Collaboration in Theory and Practice	3	6	WCS 150/ASC 100 Advanced English for Academic Purposes (2183) (B and above) AND (WCS 220 Science Writing (5686) (B+ and above) OR WCS 230 Say What you Mean: Clarity, Precision, and Style in Academic Writing (3026) (B+ and above) OR WCS 250 Advanced Rhetoric and Composition (3027) (B+ and above))			Through Add form only			
History, Philosophy and Religious Studies											
237	HST 100	History of Kazakhstan	3	6				4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SENG, 1 year UG SMG, 1 year UG SST	SEng, SHSS, SMG, SST	
238	HST 105	Introduction to Eurasian Environmental History	3	6				1 year UG SHSS, 2 year UG SHSS, History	SEng, SHSS, SMG, SST		
239	HST 123	Introduction to the History of Science and Technology	3	6				1 year UG SHSS, 2 year UG SHSS, History	SEng, SHSS, SMG, SST		
240	HST 124	Introduction to the History of Medicine	3	6				1 year UG SHSS, 2 year UG SHSS, History	SEng, SHSS, SMG, SST		
241	HST 238	Conflict of Civilizations: Communities, Confessions and Empires in Central Europe, 1000-1800	3	6				History	SEng, SHSS, SMG, SST		
242	HST 240	Representations of Nature in the Early Modern World	3	6	HST 100 History of Kazakhstan (172) (C- and above)			History	SEng, SHSS, SMG, SST		
243	HST 336	The Totalitarian Phenomenon	3	6	HST 100 History of Kazakhstan (172) (C- and above)			History	SEng, SHSS, SMG, SST		
244	HST 498	Directed Reading	3	6				4 year UG SHSS History and Culture			
245	PHIL 101	Introduction to Philosophy	3	6				SEng, SHSS, SMG, SST			
246	PHIL 141	Critical Thinking	3	6				SEng, SHSS, SMG, SST			
247	PHIL 210	Ethics	3	6				SEng, SHSS, SMG, SST			
248	PHIL 232	Philosophy of Law	3	6				SEng, SHSS, SMG, SST			
249	PHIL 240	Formal Logic	3	6				SEng, SHSS, SMG, SST			

250	PHIL 241	Beyond Common Sense: An Introduction to Paradox	3	6				SEng, SHSS, SMG, SST			
251	PHIL 362	Philosophy of Mind	3	6				SEng, SHSS, SMG, SST			
252	PHIL 399	Special Topics in Philosophy	3	6	PHIL 101 Introduction to Philosophy (242) (C- and above) OR PHIL 210 Ethics (459) (C- and above) OR PHIL 320 Truth, Knowledge and Belief (470) (C- and above) OR PHIL 230/PLS 230 Religion and Democracy (671) (C- and above)						
History, Philosophy and Religious Studies, History, Philosophy and Religious Studies											
253	HST 110/REL 110	Introduction to World Religions	3	6				GSB, GSE, GSPP, SEng, SHSS, SMG, SST			
254	HST 262/REL 264	Islamic History of Central Eurasia	3	6	HST 100 History of Kazakhstan (172) (C- and above)			History	SEng, SHSS, SMG, SST		
255	PHIL 265/REL 265	Becoming a Sage: Introduction to Daoism	3	6				SEng, SHSS, SMG, SST			
History, Philosophy and Religious Studies, Political Science and International Relations											
256	HST 213/PLS 241	Public Health, Society, and the State	3	6				History, Political Science and International Relations	SEng, SHSS, SMG, SST		
History, Philosophy and Religious Studies, Political Science and International Relations, Sociology and Anthropology											
257	ANT 313/PLS 332/REL 332	Islam and Politics in Eurasia	3	6				Anthropology, Political Science and International Relations, Sociology	3 year UG SHSS, 4 year UG SHSS	SEng, SHSS, SMG, SST	
Kazakh Language and Turkic Studies											
258	KAZ 201	Academic Kazakh I	3	6	KAZ 150 Basic Kazakh (1215) (C- and above) OR KLL "[B1.2] Intermediate"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
259	KAZ 202	Academic Kazakh II	3	6	KAZ 201 Academic Kazakh I (4561) (C- and above) OR KLL "[B2.2] Upper-Interm."				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	

260	KAZ 211	Kazakh Rhetoric	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"		KAZ 303 Academic Speaking in Kazakh (702) (C- and above) OR KAZ 304 Academic Writing in Kazakh (703) (C- and above)		1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
261	KAZ 212	Academic Writing in Kazakh	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"		KAZ 304 Academic Writing in Kazakh (703) (C- and above) OR KAZ 303 Academic Speaking in Kazakh (702) (C- and above)		1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
262	KAZ 226	Kazakh for Medical School	3	6	KLL "[B1.2] Intermediate"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
263	KAZ 313	Kazakh for Business	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
264	KAZ 351	Kazakh Short Stories	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
265	KAZ 354	Kazakh Drama	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
266	KAZ 356	Kazakh Music History	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	

267	KAZ 357	Literature of Alash	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
268	KAZ 362	Creative Writing in Kazakh Language	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
269	KAZ 363	Language and Globalization	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
270	KAZ 364	Kazakh for Civil Service	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
271	KAZ 368	Onomastics: History and Function of Names	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
272	KAZ 371	Contemporary Kazakh Literature	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
273	KAZ 372	Language and ethnicity	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
274	KAZ 373	Kazakh Terminology	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	

275	KAZ 374	Kazakh Diplomacy	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
276	KAZ 375	Cultural Studies and Kazakh Culture	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"				1 year UG SENG, 1 year UG SMG, 1 year UG SST, 4 year UG SENG, 4 year UG SHSS, 4 year UG SST	1 year UG SHSS, 2 year UG SHSS, 3 year UG SHSS, SEng, SMG, SST	
Languages, Literature and Linguistics											
277	FRE 101	Beginning French I	4	8				World Languages, Literature and Culture	1 year UG SHSS, 2 year UG SHSS	SEng, SHSS, SMG, SST	
278	FRE 311	French for Oral Proficiency	3	6	FRE 201 Intermediate French I (667) (C- and above)			SEng, SHSS, SMG, SST			
279	GER 101	Beginning German	4	8				World Languages, Literature and Culture	1 year UG SHSS, 2 year UG SHSS	SEng, SHSS, SMG, SST	
280	GER 202	Intermediate German II	4	8	GER 201 Intermediate German I (3722) (C- and above)			SEng, SHSS, SMG, SST			
281	KOR 101	Beginning Korean I	4	8							
282	LING 130	Introduction to Language and Communication	3	6				World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
283	LING 131	Introduction to Linguistics	3	6				World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
284	LING 272	Language and the Mind	3	6				World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
285	LING 273	Survey of Research Methods in Linguistics	3	6	LING 131 Introduction to Linguistics (1394) (C- and above)			World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
286	LING 275	Second Language Acquisition Theory and Research I	3	6				World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
287	LING 277	Language Diversity and Language Universals	3	6	LING 131 Introduction to Linguistics (1394) (C and above)			World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
288	LING 278	Sounds of the World’s Languages	3	6				World Languages, Literature and Culture	SHSS	SEng, SMG, SST	

289	LING 374	Language Contact in Central Asia	3	6	LING 131 Introduction to Linguistics (1394) (C- and above)			World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
290	PER 101	Beginning Persian I	4	8				World Languages, Literature and Culture	1 year UG SHSS, 2 year UG SHSS	SEng, SHSS, SMG, SST	
291	SPA 101	Beginning Spanish I	4	8				World Languages, Literature and Culture	1 year UG SHSS, 2 year UG SHSS	SEng, SHSS, SMG, SST	
292	SPA 201	Intermediate Spanish I	4	8	SPA 102 Beginning Spanish II (1128) (C- and above)			SEng, SHSS, SMG, SST			
293	SPA 314	Advanced Spanish Grammar and Composition	3	6	SPA 202 Intermediate Spanish II (1842) (C- and above)			SEng, SHSS, SMG, SST			
294	WLL 110	Introduction to Literary Studies	3	6				World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
295	WLL 201	World Literature I	3	6				World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
296	WLL 209	Introduction to Translation Studies	3	6				World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
297	WLL 257	Fan Culture in the Age of Convergence	3	6				World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
298	WLL 314	Petersburg Text in Russian Literature	3	6	Subject "WLL" BETWEEN 100 and 499 OR Subject "HST" BETWEEN 100 and 499			World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
299	WLL 440	Oral Epic in Central Asia	3	6	Subject "WLL" BETWEEN 100 and 499			World Languages, Literature and Culture	SHSS	SEng, SMG, SST	
300	WLL 498	Languages, Linguistics, and Literatures Capstone I	3	6				Through Add form only			
301	WLL 540	Oral Epic in Central Asia	4	8				Eurasian Studies	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
Languages, Literature and Linguistics, Sociology and Anthropology											
302	ANT 175/WLL 171	Introduction to Linguistic Anthropology	3	6			ANT 277/WLL 271 Language and Society (1027) (C- and above)	1 year UG SHSS, Anthropology, World Languages, Literature and Culture	SHSS	SEng, SMG, SST	

303	ANT 376/WLL 376	Language, Gender, and Sexuality	3	6	WLL 171/ANT 175 Introduction to Linguistic Anthropology (4417) (C- and above) OR ANT 277/WLL 271 Language and Society (1027) (C- and above) OR LING 131 Introduction to Linguistics (1394) (C- and above) OR LING 130 Introduction to Language and Communication (4014) (C- and above)			4 year UG SHSS Anthropology, 4 year UG SHSS World Language and Literature	SHSS	SEng, SMG, SST	
304	ANT 385/WLL 385	Postcolonial Theory and its Applications in Eurasia	3	6	ANT 110 Introduction to Sociocultural Anthropology (501) (C- and above) OR SOC 101 Introduction to Sociology (508) (C- and above) OR WLL 121 Introduction to Cultural Studies (243) (C- and above) OR WLL 102 /PHIL 102 Language, Experience, Culture (2481) (C- and above)			Anthropology, Sociology, World Languages, Literature and Culture	3 year UG SHSS, 4 year UG SHSS	SEng, SHSS, SMG, SST	
Physics											
305	PHYS 161	Physics I for Scientists and Engineers with Laboratory	4	8		MATH 161 Calculus I (118) (C and above)	PHYS 171 Physics I for Physics Majors with Laboratory (1401) (C- and above)	1 year UG SENG, 1 year UG SMG, 1 year UG SST	SST	SEng, SHSS, SMG	
306	PHYS 201	Introductory Astronomy I	3	6				Physics	SEng, SHSS, SMG, SST		
307	PHYS 221	Classical Mechanics I	3	6	(PHYS 162 Physics II for Scientists and Engineers with Laboratory (173) (C- and above) OR PHYS 172 Physics II for Physics Majors with Laboratory (1402) (C- and above)) AND MATH 273 Linear Algebra with Applications (84) (C- and above)			Physics	SST	SEng, SHSS, SMG	

308	PHYS 261	Modern Physics with laboratory	4	8	MATH 162 Calculus II (170) (C- and above) AND (PHYS 152 Introductory Physics II with Lab (1176) (C- and above) OR PHYS 162 Physics II for Scientists and Engineers with Laboratory (173) (C- and above) OR PHYS 172 Physics II for Physics Majors with Laboratory (1402) (C- and above))			Physics	SST	SEng, SHSS, SMG	
309	PHYS 315	Mathematical Methods of Physics	3	6	(PHYS 172 Physics II for Physics Majors with Laboratory (1402) (C- and above) OR PHYS 162 Physics II for Scientists and Engineers with Laboratory (173) (C- and above)) AND MATH 274 Introduction to Differential Equations (484) (C- and above)			Physics	SST	SEng, SHSS, SMG	
310	PHYS 361	Classical Electrodynamics I	3	6		PHYS 315 Applied Mathematical Methods (653) (D and above) OR PHYS 411 Advanced Mathematical Physics (3142) (D and above)		Physics	SST	SEng, SHSS, SMG	
311	PHYS 452	Quantum Mechanics II	3	6	PHYS 451 Quantum Mechanics I (1415) (C- and above)			Physics	SST	SEng, SHSS, SMG	
312	PHYS 465	Advanced Experimental Physics	3	6	PHYS 370 Optics with Laboratory (1405) (C- and above)			Physics	SST	SEng, SHSS, SMG	
313	PHYS 474	Lasers and Photonics	3	6	PHYS 370 Optics with Laboratory (1405) (C- and above)			Physics	SST	SEng, SHSS, SMG	
314	PHYS 505	Classical Mechanics	3	6							
315	PHYS 511	Computational Modeling and Simulation	3	6				Physics	SST, Science, Engineering and Technology	SEng, SHSS	
316	PHYS 515	Classical Electrodynamics	3	6							
317	PHYS 550	Advanced Mathematical Physics	3	6				Physics	SST, Science, Engineering and Technology	SEng, SHSS	

318	PHYS 574	Lasers and Photonics	3	6				Physics	SST, Science, Engineering and Technology	SEng, SHSS	
319	SST 501	Teaching and Learning	3	6							
Political Science and International Relations											
320	PLS 101	Introduction to Political Science	3	6				SEng, SMG, SST	SHSS		
321	PLS 120	Introduction to Political Theory	3	6				Political Science and International Relations	SHSS	SEng, SMG, SST	
322	PLS 140	Introduction to Comparative Politics	3	6				1 year UG SHSS, Political Science and International Relations	SHSS	SEng, SMG, SST	
323	PLS 150	Introduction to International Relations	3	6				1 year UG SHSS, Political Science and International Relations	SHSS	SEng, SMG, SST	
324	PLS 195/SOC 120	Asian Community: Development in Asia	3	6				SEng, SHSS, SMG, SST			
325	PLS 210	Political Science Research Methods	3	6				Political Science and International Relations	SHSS	SEng, SMG, SST	
326	PLS 211	Quantitative Methods in Political Science	3	6			ECON 211 Economic Statistics (2280) (C- and above)	Political Science and International Relations	SHSS	SEng, SMG, SST	
327	PLS 312	Public Opinion and Elections	3	6	PLS 211 Quantitative Methods (221) (C- and above) OR ECON 211 Economic Statistics (2280) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
328	PLS 315	Political Game Theory	3	6	PLS 211 Quantitative Methods (221) (C- and above) OR ECON 101 Introduction to Microeconomics (379) (C and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
329	PLS 340	Politics of East Asia	3	6	PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
330	PLS 342	Political Corruption	3	6	PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
331	PLS 359	United Nations	3	6	PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	

332	PLS 370	Law, Politics and Society	3	6	PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
333	PLS 395	Independent Study	3	6	PLS 210 Political Science Research Methods (129) (C- and above) AND PLS 211 Quantitative Methods (221) (C- and above)			Through Add form only			
334	PLS 416	Experimental Political Science	3	6	PLS 210 Political Science Research Methods (129) (C- and above) AND PLS 211 Quantitative Methods (221) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
335	PLS 431	Politics and Governance of the Russian Federation	3	6	PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
336	PLS 432	Comparative Democratization	3	6	PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
337	PLS 441	Advanced Topics in Comparative Politics	3	6	PLS 140 Introduction to Comparative Politics (223) (C- and above) AND PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
338	PLS 458	International Organization	3	6	PLS 150 Introduction to International Relations (511) (C- and above) AND PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
339	PLS 465	Politics of International Finance	3	6	PLS 150 Introduction to International Relations (511) (C- and above) AND PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SHSS	SEng, SMG, SST	
340	PLS 511	Advanced Research I	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
341	PLS 513	Research and Writing in Political Science	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
342	PLS 516	Experimental Political Science	4	8	PLS 511 Qualitative Methods in Political Science (1631) (C- and above)			Political Science and International Relations	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		

343	PLS 532	Comparative Democratization	4	8	PLS 540 Core Seminar in Comparative Politics (1374) (C- and above)			Political Science and International Relations	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
344	PLS 540	Core Seminar in Comparative Politics	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
345	PLS 541	Advanced Topics in Comparative Politics	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
346	PLS 550	Core Seminar in IR	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
347	PLS 565	Politics of International Finance	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
348	PLS 581	Independent Study in Political Science	4	8				Political Science and International Relations	GSB, GSE, GSPP, SEng, SHSS, SMG, SST		
SSH											
349	SHSS 300	School of Humanities and Social Sciences Internship	3	6				Through Add form only			
350	SHSS 301	School of Humanities and Social Sciences Internship: Second Experience	3	6				Through Add form only			
Sociology and Anthropology											
351	ANT 101	Introduction to Sociocultural Anthropology	3	6				1 year UG SHSS, 2 year UG SHSS Sociology, Anthropology	2 year UG SHSS	SEng, SHSS, SMG, SST	
352	ANT 140	World Prehistory	3	6				1 year UG SHSS, 2 year UG SHSS Sociology, Anthropology	2 year UG SHSS	SEng, SHSS, SMG, SST	
353	ANT 181	Introduction to Medical Anthropology	3	6				1 year UG SHSS, 2 year UG SHSS Sociology, Anthropology, Biological Sciences	2 year UG SHSS	SEng, SHSS, SMG, SST	
354	ANT 262	Monkey business: Primate Society and Behavior	3	6				2 year UG SHSS, Anthropology, Biological Sciences	SHSS	SEng, SMG, SST	
355	ANT 312	The Anthropology of Conflict	3	6				Anthropology, Sociology	3 year UG SHSS, 4 year UG SHSS	SEng, SHSS, SMG, SST	
356	ANT 400	Research Assistance in Anthropology	1	2							
357	ANT 404	Research Assistance in Anthropology	3	6							

358	SOC 101	Introduction to Sociology	3	6				Anthropology, Sociology	1 year UG SHSS, 2 year UG SHSS, 3 year UG SST Biological Sciences	SEng, SHSS, SMG, SST	
359	SOC 201	Social Science Research Methods	3	6				Anthropology, Sociology	SHSS	SEng, SMG, SST	
360	SOC 210	Gender and Society	3	6				Anthropology, Sociology	SHSS	SEng, SMG, SST	
361	SOC 215	Sociology of Race and Ethnicity	3	6				Anthropology, Sociology	SHSS	SEng, SMG, SST	
362	SOC 223	Social Movements: How People Make Change	3	6				Anthropology, Sociology	SHSS	SEng, SMG, SST	
363	SOC 318	Sexuality and Gender in a Transnational World	3	6	SOC 101 Introduction to Sociology (508) (C- and above) OR SOC 115 Global Social Problems (1032) (C- and above) OR SOC 210 Gender and Society (226) (C- and above)			Anthropology, Sociology	SHSS	SEng, SMG, SST	
364	SOC 320	Organized Crime and Corruption	3	6	SOC 101 Introduction to Sociology (508) (C- and above)			Anthropology, Sociology	SHSS	SEng, SMG, SST	
365	SOC 322	Digital Media Research Methods	3	6	SOC 201 Social Science Research Methods (1341) (C- and above) OR SOC 203 Quantitative Methods in Sociology (1377) (C- and above) OR ECON 211 Economic Statistics (2280) (C- and above) OR PLS 210 Political Science Research Methods (129) (C- and above)			Anthropology, Sociology	SHSS	SEng, SMG, SST	
366	SOC 498	Capstone Seminar Part I	3	6				4 year UG SHSS Sociology			
Sociology and Anthropology, Sociology and Anthropology											
367	ANT 281/SOC 281	Health, Illness and Society	3	6				Anthropology, Biological Sciences, Sociology	SHSS	SEng, SMG, SST	
368	ANT 285/SOC 212	Food and Society	3	6							
SEDS											
Chemical Engineering											
369	MCHE 600	MSc Thesis in Chemical Engineering	15	30							
Civil Engineering											

370	MCE 600	MSc Thesis in Civil Engineering	15	30							
371	MSC 616	Research Methods	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
Electrical and Electronic Engineering											
372	MEE 600	MSc Thesis in Electrical and Electronics Engineering	15	30							
Mechanical Engineering											
373	MME 600	Master Thesis in Mechanical Engineering	15	30							
School of Engineering											
374	BENG 215	Sensors and Actuators	3	6							
375	BENG 228	Engineering Mathematics III	3	6	BENG 124 Engineering Mathematics I (101) (D and above) AND BENG 225 Engineering Mathematics II (48) (D and above)						
SoE											
Chemical and Materials Engineering											
376	ECHE 126	Introduction to Chemical Engineering	3	6							
377	ECHE 222	Chemistry I	3	6							
378	ECHE 319	Chemical Engineering Thermodynamics	3	6							
379	ECHE 333	Separation Processes-I	3	6	ECHE 319 Chemical Engineering Thermodynamics (1218) (D and above)						
380	ECHE 369	Transport Phenomena-II	3	6							
381	ECHE 385	Research Practice	3	6							
382	ECHE 418	Capstone project 1	3	6	ECHE 323 Computational methods in Chemical Engineering-I (1272) (D and above)						
383	ECHE 478	Electrochemical Engineering and Corrosion Protection	3	6	ECHE 222 Chemistry I (731) (D and above)			4 year UG SEng Chemical Engineering			

384	ECHE 481	Chemical Reaction Engineering	3	6	ECHE 126 Introduction to Chemical Engineering (33) (D and above) AND BENG 124 Engineering Mathematics I (101) (D and above) AND BENG 225 Engineering Mathematics II (48) (D and above)						
385	ECHE 484	Multi-Phase Flows	3	6	ECHE 319 Chemical Engineering Thermodynamics (1218) (D and above) AND ECHE 270 Transport Phenomena-l (735) (D and above)			4 year UG SEng Chemical Engineering			
386	ECHE 486	Chemical Process Safety	3	6							
387	ECHE 487	Soft Matter, Foods and Colloids	3	6				4 year UG SEng Chemical Engineering			
388	ECHE 488	Atmospheric Chemistry and Physics	3	6				4 year UG SEng Chemical Engineering			
389	MCHME 603	Advanced Materials Processing	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
390	MCHME 604	Advanced Materials Characterization Methods	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
391	MCHME 605	Advanced Chemical Reaction Engineering	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
Civil Engineering											
392	MSC 602	Advanced Applied Mathematics	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
393	MSC 615	Advanced Statistics and Probability	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
Civil Engineering, Communication and Composition											
394	MSC 601	Technical Communication	3	6							
Civil and Environmental Engineering											
395	ECE 215	Surveying	3	6							
396	ECE 216	Civil Engineering CAD	3	6							

397	ECE 217	Structural Analysis I	3	6	BENG 117 Engineering Mechanics (740) (D and above)						
398	ECE 302	Civil Engineering Materials	3	6	BENG 221 Engineering Materials (47) (D and above)						
399	ECE 303	Construction Management and Practice	3	6	BENG 148 Engineering Practice (1073) (D and above)						
400	ECE 307	Engineering Geology and Rock Mechanics	3	6							
401	ECE 318	Structural Design - Concrete	3	6	ECE 479 Structural Analysis II (2460) (C- and above)						
402	ECE 401	Capstone Project 1	3	6							
403	ECE 404	Construction Technologies and Processes	3	6	BENG 148 Engineering Practice (1073) (D and above) AND ECE 302 Civil Engineering Materials (1040) (D and above)						
404	ECE 405	Environmental Engineering	3	6	ECE 473 Environmental Systems (1953) (D and above) OR ECE 218 Environmental Chemistry (3296) (D and above)						
405	ECE 416	Highway Engineering	3	6	ECE 302 Civil Engineering Materials (1040) (D and above)						
406	ECE 421	Behaviour and Design of Structural System	3	6	(ECE 318 Structural Design - Concrete (3709) (D and above) OR ECE 314 Structural Engineering Applications I (1042) (D and above)) AND (ECE 319 Structural Design – Steel (4038) (D and above) OR ECE 315 Structural Engineering Applications II (1041) (D and above))			4 year UG SEng Civil Engineering			
407	ECE 481	Individual Research Projects in Civil Engineering	3	6							
408	ECE 482	Solid and Hazardous Waste Management	3	6	ECE 405 Environmental Engineering (1265) (C- and above)			4 year UG SEng Civil Engineering			
409	EMEM 507	Project Management	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	

410	EMEM 509	Systems Engineering	3	6							
411	EMEM 523	Supply Chain Management	3	6							
412	EMEM 533	Engineering Management and Engineering Economy	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
413	EMEM 537	Engineering Decision Tools	3	6							
414	EMEM 539	Big Data and Information Management	3	6							
415	EMEM 542	Production and Service Operations Management	3	6							
416	EMEM 543	Quality and Lean Management	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
417	MCEE 603	Finite Element Methods	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
418	MCEE 604	Advanced Soil Mechanics	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
419	MCEE 605	Advanced Environmental Chemistry	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
Electrical and Computer Engineering											
420	EEE 212	Signals and Systems	3	6	BENG 225 Engineering Mathematics II (48) (D and above)						
421	EEE 238	Digital Signal and Image Processing	3	6							
422	EEE 250	Microelectronic Devices and Circuits	3	6	BENG 114 Introduction to Electrical Systems (1076) (D and above)						
423	EEE 251	Electronic Engineering Design Principles	3	6	BENG 114 Introduction to Electrical Systems (1076) (D and above)						
424	EEE 342	Electromagnetics	3	6							
425	EEE 345	Power Electronics	3	6	ELCE 201 Circuit Theory (5507) (D and above)						
426	EEE 382	Antennas and Propagation	3	6							
427	EEE 384	Digital Integrated Circuits Design	3	6	EEE 250 Microelectronic Devices and Circuits (3152) (C- and above)						
428	EEE 437	Capstone Project 1	3	6							

429	EEE 448	Power Transmission and Distribution plants	3	6							
430	EEE 450	RF and Microwave Circuit Design	3	6							
431	EEE 451	High Voltage Engineering	3	6							
432	EEE 452	Power Systems Protection	3	6	ELCE 303 Power System Analysis (6180) (D and above)						
433	EEE 482	Mobile Communications	3	6	EEE 239 Communication systems (534) (C- and above)						
434	EEE 490	Introduction to Big Data	3	6							
435	EEE 491	Internet of Things	3	6	BENG 146 Programming for Engineers (2234) (C- and above) AND EEE 343 Embedded Microcontrollers (1532) (C- and above)						
436	EEE 492	Deep Learning Machines	3	6							
437	EEE 493	Industry 4.0	3	6							
438	ENG 101	Programming for Engineers	3	6			CSCI 151 Programming for Scientists and Engineers (192) (F) OR CSCI 111 Web Programming and Problem Solving (110) (F) OR CSCI 115 Programming Fundamentals (5257) (F) OR CSCI 152 Performance and Data Structures (489) (F) OR CSCI 408 Senior Project I (1481) (F) OR CSCI 409 Senior Project II (1483) (F)	1 year UG SENG	1 year UG SMG, 1 year UG SST	1 year UG SHSS	
439	MECE 603	Advanced Data Structures and Algorithms	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	

440	MECE 605	Statistics and Probability for Electrical and Computer Engineers	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
441	MECE 606	Embedded Systems and Applications	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
Mechanical and Aerospace Engineering											
442	EME 253	Computer Aided Engineering	3	6							
443	EME 254	Mechanics of Materials	3	6							
444	EME 262	Machine Dynamics I	3	6							
445	EME 354	Advanced Control Systems	3	6	BENG 219 Control Systems (728) (D and above)						
446	EME 358	Heat Transfer	3	6	BENG 226 Engineering Thermodynamics (1553) (D and above) AND EME 275 Fluid Mechanics I (1988) (D and above)						
447	EME 361	Machine Design	3	6							
448	EME 410	Aerodynamics	3	6	EME 357 Fluid Mechanics II (1280) (D and above)						
449	EME 412	Heating, Ventilating and Air Conditioning	3	6	MAE 301 Engineering Thermodynamics (5927) (D and above)						
450	EME 413	Computer Aided Geometric Design	3	6	EME 253 Computer Aided Engineering (1050) (C- and above)						
451	EME 451	Capstone Project 1	3	6							
452	EME 456	Feasibility Analysis of Clean Energy Technologies	3	6							
453	EME 463	Machine Dynamics II	3	6							
454	EME 467	Vehicle Propulsion Systems	3	6							
455	EME 487	Mechatronics Systems Design	3	6	BENG 219 Control Systems (728) (C- and above)						
456	ENG 100	Introduction to Engineering	3	6				1 year UG SENG	1 year UG SMG, 1 year UG SST	1 year UG SHSS	
457	MMAE 603	Modern Control Engineering	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	

458	MMAE 605	Advanced Manufacturing Processes and Strategies	3	6				1 year Gr SENG, 2 year Gr SENG	Science, Engineering and Technology	GSB, GSE, GSPP, SHSS, SMG, SST, SoM	
Mining Engineering											
459	MINE 500	Foundations of Mining	3	6							
460	MINE 511	Applied Geostatistics	3	6							
461	MINE 512	Mining and Engineering Geology	3	6							
462	MINE 516	Advanced Mine Ventilation	3	6							
463	MINE 519	Mine Automation and Maintenance	3	6	MINE 502 Geology for Mining Engineers (3691) (C- and above)						
464	MINE 520	Mine Geomechanics	3	6							
465	MINE 521	Underground Hard Rock Geotechnical Engineering	3	6				2 year Gr SMG			
466	MINE 522	Advanced Geostatistical Modelling	3	6	MINE 503 Applied Geostatistics (3692) (C- and above)			2 year Gr SMG			
467	MINE 524	Advanced Tunnelling	3	6				2 year Gr SMG			
468	MINE 526	Thesis Literature Review	6	12							
469	MINE 604	Geology of Ore Deposits	3	6				2 year Gr SMG			
Petroleum Engineering											
470	PETE 501	Foundations of Petroleum Engineering	3	6							
471	PETE 502	Petroleum Geology	3	6							
472	PETE 503	Fluid Flow Through Porous Media	3	6							
473	PETE 504	Advanced Formation Evaluation	3	6							
474	PETE 505	Advanced Drilling Engineering	3	6							
SMG											
475	DENG 783	Statistics	3	6				Science, Engineering and Technology			
School of Engineering											
476	BENG 405	Project Management	3	6							
477	DENG 782	Personal and Professional Skills Development	3	6				Science, Engineering and Technology			
478	DENG 784	Doctoral Proposal I	0	6				Science, Engineering and Technology			
479	DENG 785	PhD Proposal Oral Defence	0	0				Science, Engineering and Technology			

480	DENG 787	Doctoral Proposal II	3	6	DENG 784 Doctoral Proposal I (1774) (P)	DENG 785 PhD Proposal Oral Defence (2604) (P)		Science, Engineering and Technology			
481	DENG 789	Doctoral Seminar I	3	6	DENG 785 PhD Proposal Oral Defence (2604) (P)			Science, Engineering and Technology		4 year Gr SENG (pending graduation)	
482	DENG 790	Doctoral Seminar II	3	6	DENG 789 Doctoral Seminar I (4598) (P)			Science, Engineering and Technology			
483	DENG 791	Doctoral Seminar III	3	6	DENG 790 Doctoral Seminar II (4599) (P)			Science, Engineering and Technology			
484	DENG 792	Doctoral Seminar IV	3	6	DENG 791 Doctoral Seminar III (4600) (P)			Science, Engineering and Technology			
485	DENG 793	Doctoral Seminar V	3	6	DENG 792 Doctoral Seminar IV (4601) (P)			Science, Engineering and Technology			
486	DENG 794	Dissertation Research	12	24	DENG 785 PhD Proposal Oral Defence (2604) (P)			Science, Engineering and Technology		4 year Gr SENG (pending graduation)	
487	DENG 795	Research at Host University	6	12	DENG 785 PhD Proposal Oral Defence (2604) (P)			Science, Engineering and Technology			
488	DENG 796	Thesis Completion	0	0				Science, Engineering and Technology			
489	DENG 797	Oral Defence of PhD Dissertation	0	0	DENG 785 PhD Proposal Oral Defence (2604) (P) AND DENG 789 Doctoral Seminar I (4598) (P) AND DENG 790 Doctoral Seminar II (4599) (P)			Science, Engineering and Technology			
490	DENG 798	Doctoral Seminar VI	3	6	DENG 793 Doctoral Seminar V (4602) (P)			Science, Engineering and Technology			
491	DENG 799	Doctoral Seminar VII	3	6	DENG 798 Doctoral Seminar VI (4607) (P)			Science, Engineering and Technology			
SCAI											
Computer Science											
492	CSCI 151	Programming for Scientists and Engineers	4	8			CSCI 111 Web Programming and Problem Solving (110) (D and above) OR CSCI 115 Programming Fundamentals (5257) (D and above) OR ENG 101 Programming for Engineers (4517) (B- and above)	1 year UG SST	SMG, SST	SHSS	

493	CSCI 231	Computer Systems and Organization	3	6	CSCI 151 Programming for Scientists and Engineers (192) (C- and above)			Computer Science			
494	CSCI 235	Programming Languages	4	8	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science			
495	CSCI 262	Software Project Management	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science	SST	SHSS	
496	CSCI 281	Human-Computer Interaction	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science	SST	SHSS	
497	CSCI 299	Internship I	3	6				Through Add form only			
498	CSCI 344	Data Mining and Decision Support	3	6	CSCI 341 Database Systems (195) (C- and above) AND MATH 273 Linear Algebra with Applications (84) (C- and above)			Computer Science			
499	CSCI 361	Software Engineering	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science			
500	CSCI 390	Artificial Intelligence	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science			
501	CSCI 398	Directed Study	3	6				Through Add form only			
502	CSCI 408	Senior Project I	3	6				Computer Science			
503	CSCI 434	Information Security	3	6		CSCI 333 Computer Networks (1145) (D and above)		Computer Science			
504	CSCI 471	Complexity and Computability	3	6	MATH 251 Discrete Mathematics (85) (C- and above)			Computer Science			
505	CSCI 494	Deep Learning	3	6	CSCI 390 Artificial Intelligence (643) (C and above) AND MATH 273 Linear Algebra with Applications (84) (C and above)			Computer Science			
506	CSCI 501	Software Principles and Practice	3	6							
507	CSCI 511	CS Track Core-Theory	3	6							
508	CSCI 512	Information Theory	3	6							

509	CSCI 525	Quantum Computing	3	6				Computer Science, Physics	SST, Science, Engineering and Technology	SEng, SHSS	
510	CSCI 545	Big Data Analytics	3	6							
511	CSCI 575	Formal Methods and Applications	3	6							
512	SST 503	Laboratory Practicum	3	6	SEDS 502 Teaching Practicum (2824) (P)						
513	SST 591	Research Methods	3	6							
514	SST 693	Thesis Proposal	3	6	SEDS 591 Research Methods (3184) (C- and above)						
Mathematics											
515	MATH 109	Mathematical Discovery	3	6			MATH 161 Calculus I (118) (C- and above)	SHSS	SST		
516	MATH 161	Calculus I	4	8				1 year UG SENG, 1 year UG SMG, 1 year UG SST	SST	SEng, SHSS	
517	MATH 162	Calculus II	4	8	MATH 161 Calculus I (118) (C and above)			3 year UG SHSS, 4 year UG SHSS, SST	SHSS		
518	MATH 251	Discrete Mathematics	3	6	MATH 161 Calculus I (118) (C and above)			Computer Science, Mathematics	Physics, Robotics and Mechatronics, SHSS		
519	MATH 263	Calculus III	4	8	MATH 162 Calculus II (170) (C and above)			4 year UG SHSS, SST	SHSS		
520	MATH 273	Linear Algebra with Applications	4	8	MATH 161 Calculus I (118) (C and above)	MATH 162 Calculus II (170) (C and above)		4 year UG SHSS, SST	SHSS		
521	MATH 274	Introduction to Differential Equations	3	6	MATH 162 Calculus II (170) (C and above)			4 year UG SHSS, SST	SHSS		
522	MATH 310	Applied Statistical Methods	3	6	MATH 161 Calculus I (118) (C and above)		MATH 321 Probability (482) (C and above)	2 year UG SST Biological Sciences, 2 year UG SST Computer Science, 3 year UG SST Biological Sciences, 3 year UG SST Computer Science, 4 year UG SST Biological Sciences, 4 year UG SST Computer Science	Mathematics, SHSS		

523	MATH 321	Probability	3	6	MATH 162 Calculus II (170) (C and above)		ECON 211 Economic Statistics (2280) (C- and above) OR PLS 211 Quantitative Methods (221) (C- and above)	4 year UG SHSS, Computer Science, Mathematics	SHSS, SST		
524	MATH 323	Actuarial Mathematics I	3	6	MATH 321 Probability (482) (C and above) OR ECON 211 Economic Statistics (2280) (C and above) OR (MATH 162 Calculus II (170) (C and above) AND MATH 310 Applied Statistical Methods (82) (C and above))			Mathematics	SHSS		
525	MATH 351	Numerical Methods with Applications	3	6	MATH 274 Introduction to Differential Equations (484) (C and above) AND MATH 263 Calculus III (81) (C and above)		ENG 202 Numerical Methods in Engineering (5506) (C and above)	Mathematics	SHSS, SST		
526	MATH 361	Real Analysis I	3	6	MATH 263 Calculus III (81) (C and above) AND MATH 251 Discrete Mathematics (85) (C and above)			Mathematics	SHSS, SST		
527	MATH 425	Stochastic Processes	3	6	MATH 321 Probability (482) (C and above) OR ECON 211 Economic Statistics (2280) (C and above)			Mathematics	SHSS, SST		
528	MATH 441	Design of Experiments	3	6	MATH 273 Linear Algebra with Applications (84) (C and above) AND (MATH 310 Applied Statistical Methods (82) (C and above) OR MATH 322 Mathematical Statistics (1165) (C and above))			Mathematics	SHSS, SST		
529	MATH 471	Nonlinear Differential Equations	3	6	MATH 273 Linear Algebra with Applications (84) (C and above) AND MATH 274 Introduction to Differential Equations (484) (C and above)			Mathematics	SHSS, SST		

530	MATH 480	Complex Analysis	3	6	MATH 263 Calculus III (81) (C and above)			Mathematics	SHSS, SST		
531	MATH 481	Partial Differential Equations	3	6	MATH 274 Introduction to Differential Equations (484) (C and above)	MATH 480 Complex Analysis (618) (C and above)		Mathematics	SHSS, SST		
532	MATH 517	Scientific Modeling and Simulation with Mathematics	3	6							
533	MATH 518	Applied Finite Element Analysis	3	6							
534	MATH 540	Statistical Learning	3	6							
535	MATH 576	Numerical Methods for Partial Differential Equations	3	6							
536	MATH 676	Advanced Partial Differential Equations with Applications	3	6							
Robotics and Mechatronics											
537	ROBT 201	Mechanics: Statics and Dynamics	3	6	MATH 162 Calculus II (170) (C- and above) AND (PHYS 161 Physics I for Scientists and Engineers with Laboratory (116) (C- and above) OR PHYS 171 Physics I for Physics Majors with Laboratory (1401) (C- and above))			Robotics and Mechatronics	SST		
538	ROBT 203	Electrical and Electronic Circuits I with Lab	4	8	MATH 162 Calculus II (170) (C- and above) AND (PHYS 162 Physics II for Scientists and Engineers with Laboratory (173) (C- and above) OR PHYS 172 Physics II for Physics Majors with Laboratory (1402) (C- and above) OR (PHYS 141 Physics I for non-majors with Lab (1437) (C- and above) AND PHYS 142 Physics II for non-majors with Lab (1438) (C- and above)))			Robotics and Mechatronics	SST		

539	ROBT 205	Signals and Sensing with Lab	4	8	MATH 162 Calculus II (170) (C- and above) AND (PHYS 162 Physics II for Scientists and Engineers with Laboratory (173) (C- and above) OR PHYS 172 Physics II for Physics Majors with Laboratory (1402) (C- and above))			Robotics and Mechatronics	SST		
540	ROBT 301	Mechanical Design I with CAD Laboratory	4	8	ROBT 201 Mechanics: Statics and Dynamics (475) (C- and above)			Robotics and Mechatronics	SST		
541	ROBT 303	Linear Control Theory with Lab	4	8	ROBT 202 System Dynamics and Modeling (68) (C- and above)			Robotics and Mechatronics	SST		
542	ROBT 305	Embedded Systems	3	6	ROBT 206 Microcontrollers with Lab (476) (C- and above)			Robotics and Mechatronics	SST		
543	ROBT 307	Power Electronics	3	6	ROBT 204 Electrical and Electronic Circuits II with Lab (491) (C- and above)			Robotics and Mechatronics	SST		
544	ROBT 308	Industrial Automation	3	6				Robotics and Mechatronics	SST		
545	ROBT 401	Robot Dynamics and Control	3	6	ROBT 303 Linear Control Theory with Lab (623) (C- and above)			Robotics and Mechatronics	SST		
546	ROBT 407	Statistical Methods and Machine Learning	3	6	MATH 273 Linear Algebra with Applications (84) (C- and above) AND MATH 321 Probability (482) (C- and above) AND CSCI 152 Performance and Data Structures (489) (C- and above)			Robotics and Mechatronics	SST		
547	ROBT 414	Human-Robot Interaction	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Robotics and Mechatronics	SST		
548	ROBT 501	Robot Manipulation and Mobility	3	6							
549	ROBT 503	Dynamic Systems and Control	3	6							
550	ROBT 611	Industrial Robotics	3	6	ROBT 501 Advanced Robot Kinematics (2263) (C- and above)			Robotics	SST, Science, Engineering and Technology	SEng, SHSS	
551	ROBT 613	Brain-Machine Interfaces	3	6				Robotics	SST, Science, Engineering and Technology	SEng, SHSS	

552	ROBT 615	Optimal Control and Planning	3	6	ROBT 503 System Dynamics and Control (2264) (C- and above)			Robotics	SST, Science, Engineering and Technology	SEng, SHSS	