Course Requirements and Registration Priorities
Fall 2016

#	Abbr	Title	Cr(US)	Cr(ECTS)	PreRequisite	CoRequisite	AntiRequisite	1st priority registration	2nd priority registration	3rd priority registration	4th priority registration
SST											
Biological Science											
1	BIOL 320	Developmental Biology with Lab	4	8	((BIOL 110 Modern Biology I (107) (C- and above) AND BIOL 110 Modern Biology I Lab (1444) (C- and above)) OR PREM 110 Pre-med Biology I with lab (1071) (C- and above) OR BIOL 110 Modern Biology I (1070) (C- and above)) AND (BIOL 120 Modern Biology II (1195) (C- and above) OR (BIOL 120 Modern Biology II (177) (C- and above) AND BIOL 120 Modern Biology II Lab (1445) (C- and above))) AND ((BIOL 220 Molecular Biology of Cell (477) (C- and above) AND BIOL 220 Molecular Biology of Cell Lab (478) (C- and above)) OR BIOL 301 Molecular Biology of Cell with Lab (1197) (C- and above) OR BIOL 231 Human Anatomy and Physiology II (479) (C- and above))			Biological Sciences	SST	SHSS	
SHSS											
Economics											
2	ECON 327	Energy Economics	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
3	ECON 329	International Finance	3	6	ECON 202 Intermediate Macroeconomics (207) (C- and above)						
4	ECON 445	Public Finance	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above) AND ECON 301 Econometrics I (664) (C- and above)			4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
5	ECON 451	Topics in Microeconomics	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			4 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST		

History, Philosophy and Religious Studies, Political Science and International Relations											
6	PLS 328/REL 328	Confucianism and the Development of Chinese Politics	3	6				Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST		
Kazakh Language and Turkic Studies											
7	KAZ 314	Speech Culture in Business	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
8	KAZ 358	Technique of Translation	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
CPS											
NUFYP											
9	FEAP 001	English for Academic Purposes	0	0							
10	FHUM 001	Humanities	0	0							
11	FMATH 001	Mathematics	0	0							
12	FSCIEN 001	Sciences	0	0							
GSB											
Economics											
13	ECON 101	Introduction to Microeconomics	3	6				1 year UG SHSS	2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
14	ECON 102	Introduction to Macroeconomics	3	6				1 year UG SHSS	2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, 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))			2 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, 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))			4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	

17	ECON 300	Research Assistance in Economics	1	2	ECON 101 Introduction to Microeconomics (379) (C- and above) AND ECON 102 Introduction to Macroeconomics (503) (C- and above) OR CSCI 151 Programming for Scientists and Engineers (192) (C- and above) OR CSCI 235 Programming Languages (638) (C- and above) OR CSCI 390 Artificial Intelligence (643) (C- and above) OR MATH 321 Probability (482) (C- and above) OR MATH 322 Mathematical Statistics (1165) (C- and above)			Through Add form only			
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)))			3 year UG SHSS Economics, 4 year UG SHSS Economics	2 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
19	ECON 305	Advanced Microeconomics	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)	ECON 211 Economic Statistics (2280) (D and above)	ECON 398 General Special Topics in Economics (2184) (C- and above)	4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
20	ECON 320	Money and Banking	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
21	ECON 321	Economic Growth	3	6	ECON 202 Intermediate Macroeconomics (207) (C- and above)			4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
22	ECON 341	Economic Simulation Modeling	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
23	ECON 345	The Economics of Family	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
24	ECON 399	Independent Study in Economics	3	6							

25	ECON 403	Introduction to Contract Theory and Auctions	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above) AND ECON 301 Econometrics I (664) (C- and above)			4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
26	ECON 412	Industrial Organization	3	6	ECON 301 Econometrics I (664) (C- and above)			4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
27	ECON 416	Empirical Industrial Organization	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above) AND ECON 301 Econometrics I (664) (C- and above)			4 year UG SHSS Economics	3 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST	
28	ECON 443	Topics in Macroeconomic Theory	3	6	ECON 202 Intermediate Macroeconomics (207) (C- and above) AND ECON 301 Econometrics I (664) (C- and above)			4 year UG SHSS Economics	3 year UG SEng Civil Engineering, SHSS, SST		
29	ECON 501	Microeconomics I	4	8							
30	ECON 502	Macroeconomics I	4	8							
31	ECON 503	Introduction to Contract Theory and Auctions	4	8							
32	ECON 511	Statistics	4	8							
33	ECON 512	Mathematical Economics	4	8							
34	ECON 516	Empirical Industrial Organization	4	8	ECON 501 Microeconomics (2187) (C- and above) AND ECON 531 Econometrics (2505) (C- and above)						
35	ECON 532	Applied Econometrics	4	8							
36	ECON 543	Topics in Macroeconomic Theory	4	8	ECON 502 Macroeconomics (2186) (C- and above)						
37	ECON 545	Public Finance	4	8	ECON 501 Microeconomics (2187) (C- and above) OR ECON 413 Econometrics II Time Series (1037) (C- and above) OR ECON 531 Econometrics (2505) (C- and above)						
38	ECON 551	Topics in Microeconomic Theory	4	8	ECON 511 Mathematics and Statistics (2188) (C and above)						
GSB											
39	MBA 01	Consequential Leadership	1	2							

40	MBA 02	Business Mathematics and Business Computer Application	1	2							
41	MBA 03	Financial Accounting	2	4							
42	MBA 04	Probability and Statistics	2	4							
43	MBA 05	Business Communication	2	4							
44	MBA 07	Managerial Effectiveness	2	4							
45	MBA 08	Managerial Economics	2	4							
46	MBA 09	Marketing Management	2	4							
47	MBA 18	Financial Statement Analysis	2	4							
48	MBA 19	Distinguished Speaker Series	0	1							
49	MBA 20	Practicum Project	2.5	5							
50	MBAE 1	Investments	2	4							
51	MBAE 6	International Finance	2	4							
52	MBAE 7	Supply Chain Management	2	4							
53	MBAE 8	Leadership	2	4							
54	MBAE 9	Marketing Strategy	2	4							
GSPP											
Master in Public Administration											
55	MPA 602	Public Administration in Theory and Practice	4	8							
56	MPA 603	Economic Applications for Public Managers	4	8							
57	MPA 605	Research Methods	4	8							
58	MPA 608	Strategic Management and Leadership	3	6							
59	MPA 609	Human Resource Management	3	6							
60	MPA 611	Benefit Cost Analysis	0	0							
61	MPA 613	Economic and Social Policy	3	6							
62	MPA 614	Comparative Economic Development	3	6							
63	MPA 699	Master’s Project	6	12							
64	MPP 671	Game Theory and Public Policy	4	8							
65	MPP 683	Energy Systems and Climate Policy	4	8							
Master in Public Policy											
66	MPP 601	Microeconomics and Public Policy	4	8							

67	MPP 611	Statistical Techniques for Public Policy	4	8							
68	MPP 612	Public Policy Research and Evaluation	4	8							
69	MPP 621	Introduction to Public Policy and Analysis	4	8							
70	MPP 625	Central Asian politics: Comparative Analysis	4	8							
71	MPP 631	Politics and Public Policy	4	8							
72	MPP 636	Weapons of Mass Destruction Nonproliferation and Disarmament	4	8							
73	MPP 639	International Financial Policy	4	8							
GSE											
MA in Multilingual Education											
74	EDUC 630	Introduction to Linguistics	3	6							
75	EDUC 631	Language and Literacy Development	3	6							
76	EDUC 632	Foundations of Multilingual Education	3	6							
77	EDUC 635	The Multilingual School	3	6							
78	EDUC 636	Principles and Methods of Language Education in Multilingual Contexts	3	6							
79	EDUC 637	Globalization and Language Education	3	6							
80	EDUC 658	Thesis Research I	3	6							
MSc Educational Leadership HE											
81	EDHE 609	Introduction to Educational Leadership: Higher Education	3	6							
82	EDUC 500	English Language Preparation	0	0							
83	EDUC 502	English for Research	3	6							
84	EDUC 503	English for Thesis writing	1.5	3							
85	EDUC 505	Academic English 1	1.5	3							
86	EDUC 510	Advanced English for Education Professionals	3	6							
87	EDUC 573	Academic Writing in Kazakh	3	6							

88	EDUC 590	Academic English Writing for Doctoral Students I	1.5	3							
89	EDUC 600	Research Methods I	3	6							
90	EDUC 600	Research Methods II	3	6							
91	EDUC 602	Educational Context and Reform in Kazakhstan	3	6							
92	EDUC 640	Thesis Seminar (Part II)	3	6							
93	EDUC 640	Thesis Seminar (Part I)	1.5	3							
94	EDUC 701	Education Research Methods	3	6							
95	EDUC 710	Educational Studies in Context	3	6							
96	EDUC 712	Educational Policy and Reform	3	6							
97	EDUC 720	Philosophy of Education	3	6							
98	EDUC 731	Proposal Defence	3	6							
99	EDUC 740	Doctoral Seminar	3	6							
100	EDUC 750	Dissertation Research	9	18							
101	EDUC 800	International Study	12	24							
MSc Educational Leadership IE											
102	EDIE 609	Introduction to Educational Leadership: Inclusive Education	3	6							
MSc Educational Leadership SE											
103	EDSE 609	Introduction to Educational Leadership: School Education	3	6							
104	EDUC 608	Preparing Children for the Future: Skills and Employability	3	6							
105	EDUC 610	Assessment: Theories, policies, practices	3	6							
106	EDUC 612	Professional Identity	3	6							
107	EDUC 613	Children as Learners	3	6							
108	EDUC 615	Perspectives on Inclusive Education	3	6							
109	EDUC 619	Education Policy Analysis	3	6							

Other											
Other											
110	T- 17191	Artists, Patrons and Academies in Early Modern Europe	3	6							
111	T- 17266	Literature and Culture of English Speaking Countries: The 19th Century I	3	6							
112	T- 17319	Techniques and Languages in English Narrative	3	6							
113	T- 205512	Narrativa Espanola actual: novela y cuento	3	6							
114	T- 205514	El espanol y su cultura	3	6							
115	T-HIST 1228	Survey of US History Since 1865	3	6							
116	T-PLSI 3250	Electoral Behavior/Political Parties	3	6							
117	T-PLSI 3320	Government and Politics: China	3	6							
118	T-PP 5136	Applied Public Sector Economics	4	8							
119	T-PP 5147	Asian Global Cities	4	8							
120	T-PP 5168	Public Service Leadership	4	8							
121	T-PP 5178	Leadership and Decision-Making Skills	4	8							
122	T-PPA 2008	American Government and Public Administration	3	6							
123	T-SCI 1600	Physics for Liberal Studies	3	6							
SoM											
Biological Science											
124	BIOL 101	Biology for non-Science majors	3	6			BIOL 110 Modern Biology I (1070) (C- and above)				
125	BIOL 110	Modern Biology I with Lab	4	8				1 year UG SST	SST	SHSS	
126	BIOL 210	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	SHSS	
127	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	SHSS	

128	BIOL 330	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	SHSS	
129	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	SHSS	
130	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	SHSS	
131	BIOL 355	Jr. Research Seminar	3	6	BIOL 120 Modern Biology II (1195) (C and above)			Biological Sciences	SST	SHSS	
132	BIOL 399	Biology Internship - 2B	3	6				Through Add form only			
133	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	SHSS	
134	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	SHSS	

135	BIOL 490	Senior Honors Thesis	4	8	BIOL 355 Critical Research Reasoning (1000) (B and above)			Through Add form only			
136	BIOL 501	Fundamentals of Biological Sciences	3	6							
137	BIOL 511	Critical Appraisal of Scientific Literature	3	6							
138	BIOL 520	Statistical Methods in Research	3	6							
139	BIOL 600	Graduate Seminar Series	3	6							
140	BIOL 670	Gene Therapy	3	6							
141	BIOL 690	Research Thesis I	6	12							
Public Health											
142	PUBH 501	Principles of Public Health Problem Solving	3	6							
143	PUBH 511	Inferential Biostatistics	3	6							
144	PUBH 521	Principles of Analytical Epidemiology	3	6							
145	PUBH 528	Qualitative Research Methods	3	6							
146	PUBH 531	Emerging Infectious Diseases	3	6							
SSH											
Academic Success Centre, Communication and Composition											
147	SHSS 150	Rhetoric and Composition	3	6				1 year UG SHSS, 2 year UG SHSS	SST	3 year UG SEng Civil Engineering, SHSS	
Area Studies											
148	EAS 500	Introduction to Eurasia	4	8							
149	EAS 501	General Methodology	4	8							
150	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)						
Area Studies, Political Science and International Relations, Sociology and Anthropology											
151	EAS 506/PLS 514/SOC 514	Qualitative Research Methods	4	8							

Chemistry											
152	CHEM 090	Chemistry for Non-Science majors	3	6							
153	CHEM 091	Survey of Physical Science	3	6							
154	CHEM 101	General Chemistry I	3	6				1 year UG SST	SST	SHSS	
155	CHEM 101L	General Chemistry I lab	1	2		CHEM 101 General Chemistry I (113) (C and above)		1 year UG SST	SST	SHSS	
156	CHEM 102	General Chemistry II	3	6	CHEM 101 General Chemistry I (113) (C and above)			Chemistry	SST	SHSS	
157	CHEM 102L	General Chemistry II lab	1	2	CHEM 101L General Chemistry I lab (179) (C and above)	CHEM 102 General Chemistry II (232) (C and above)		Chemistry	SST	SHSS	
158	CHEM 189c	Independent Study	3	6							
159	CHEM 211	Organic Chemistry I	3	6	CHEM 102 General Chemistry II (232) (C and above)			Chemistry	SST	SHSS	
160	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	SST	SHSS	
161	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	SST	SHSS	
162	CHEM 212L	Organic Chemistry II Lab	2	4	CHEM 211L Organic Chemistry I Lab (156) (C and above)	CHEM 212 Organic Chemistry II (443) (C and above) OR CHEM 292 Organic Chemistry for Biologists II (1901) (C and above)		Chemistry	SST	SHSS	
163	CHEM 220	Quantitative Chemical Analysis with lab	4	8	CHEM 102 General Chemistry II (232) (C and above)			Chemistry	SST	SHSS	

164	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	SST	SHSS	
165	CHEM 331L	Physical Chemistry Lab	1	2		CHEM 331 Physical Chemistry I (634) (C and above)		Chemistry	SST	SHSS	
166	CHEM 350	Descriptive Inorganic Chemistry	3	6	CHEM 101 General Chemistry I (113) (C and above)			Chemistry	SST	SHSS	
167	CHEM 410	Structural Spectroscopy	3	6	CHEM 212 Organic Chemistry II (443) (C and above)			Chemistry	SST	SHSS	
168	CHEM 431	Computational Chemistry	3	6	CHEM 332 Physical Chemistry II (1056) (C and above) AND (CSCI 111 Web Programming and Problem Solving (110) (C- and above) OR CSCI 150 Fundamentals of Programming (1501) (C- and above) OR CSCI 151 Programming for Scientists and Engineers (192) (C- and above))			SST			
169	CHEM 450	Advanced Inorganic Chemistry	3	6	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	SST	SHSS	
170	CHEM 490	Nanochemistry	3	6	CHEM 331 Physical Chemistry I (634) (C and above) AND CHEM 250 Descriptive Inorganic Chemistry (445) (C and above)			Chemistry	SST	SHSS	
Communication and Composition											
171	COMM 220	Media History	3	6							
172	COMM 270	Introduction to Public Relations	3	6							
173	SHSS 230	Rhetoric & Style in Academic Writing	3	6	WCS 150/ASC 100 Advanced English for Academic Purposes (2183) (C- and above)						

174	SHSS 250	Advanced Rhetoric and Composition	3	6	WCS 150/ASC 100 Advanced English for Academic Purposes (2183) (C- and above)			SHSS	SST	3 year UG SEng Civil Engineering	
175	SHSS 330	Writing Fellows: Composition and Collaboration in Theory and Practice I	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											
176	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 SHSS, 1 year UG SST	SEng, SHSS, SST	
177	HST 123	Introduction to the History of Science and Technology	3	6				1 year UG SHSS, History	1 year UG SST	3 year UG SEng Civil Engineering, SHSS, SST	
178	HST 124	Introduction to the History of Medicine	3	6				1 year UG SHSS, History	1 year UG SST	3 year UG SEng Civil Engineering, SHSS, SST	
179	HST 182	East Asian History II (from 1500)	3	6				1 year UG SHSS, History	3 year UG SEng Civil Engineering, SHSS, SST		
180	HST 199	Freshman Seminar: Russian Revolution	3	6				History	3 year UG SEng Civil Engineering, SHSS, SST		
181	HST 212	Coins, cotton, and cocoons: Global trade and Eurasian materiality (ca. 1500-1850)	3	6	Subject "HST" BETWEEN 100 and 199			History	3 year UG SEng Civil Engineering, SHSS, SST		
182	HST 232	Russian History from Riurik to Catherine the Great	3	6				History	3 year UG SEng Civil Engineering, SHSS, SST		
183	HST 313	From Columbus to AIDS: Sex and Disease in the Modern World	3	6				History	3 year UG SEng Civil Engineering, SHSS, SST		

184	HST 322	Technology and Modernity	3	6				3 year UG SHSS, History	4 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
185	HST 498	Directed Reading	3	6				Through Add form only			
186	PHIL 110	The Good Life in Practice	3	6				1 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST		
187	PHIL 240	Formal Logic	3	6				SHSS	3 year UG SEng Civil Engineering, SST		
188	PHIL 320	Truth, Knowledge and Belief	3	6				SHSS	3 year UG SEng Civil Engineering, SST		
189	PHIL 360	Philosophy of Artificial Intelligence	3	6				SHSS	3 year UG SEng Civil Engineering, SST		
190	REL 410	Buddhism in Central Asia	3	6	Subject "REL" BETWEEN 100 and 199			History	3 year UG SEng Civil Engineering, SHSS, SST		
191	REL 510	Buddhism in Central Asia	4	8							
History, Philosophy and Religious Studies, History, Philosophy and Religious Studies											
192	HST 320/REL 320	The Crusades	3	6	Subject "HST" BETWEEN 100 and 199			History	3 year UG SEng Civil Engineering, SHSS, SST		
193	HST 341/REL 341	Eastern Christianity	3	6			REL 240 Christian Religious Traditions (1348) (C- and above)	History	3 year UG SEng Civil Engineering, SHSS, SST		
History, Philosophy and Religious Studies, Languages, Literature and Linguistics											
194	PHIL 102/WLL 102	Language, Experience, Culture	3	6				1 year UG SHSS	SHSS	3 year UG SEng Civil Engineering, SST	
History, Philosophy and Religious Studies, Political Science and International Relations, Sociology and Anthropology											
195	ANT 313/PLS 332/REL 332	Islam and Politics in Eurasia	3	6				3 year UG SHSS, 4 year UG SHSS, Anthropology, Sociology	SHSS	3 year UG SEng Civil Engineering, SST	
Kazakh Language and Turkic Studies											

196	KAZ 101	Basic Kazakh I	3	6	KLL "[A2] Basic"						
197	KAZ 105	Basic Kazakh II	3	6	KLL "[A2] Basic"						
198	KAZ 111	Intermediate Kazakh I	3	6	KLL "[B1.2] Intermediate"						
199	KAZ 114	Intermediate Kazakh II	3	6	KLL ""						
200	KAZ 121	Upper-Intermediate Kazakh	3	6	KLL "[B2.2] Upper-Interm."						
201	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)				
202	KAZ 212	Academic 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)				
203	KAZ 213	Kazakh Terminology	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
204	KAZ 225	Kazakh Diplomacy	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
205	KAZ 230	Kazakh Culture through Ethnography, Literature, and Film	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
206	KAZ 263	Business Etiquette	3	6	KLL "[B2.2] Upper-Interm." OR KLL "[C1.1] Advanced"						
207	KAZ 313	Kazakh for Business	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
208	KAZ 351	Kazakh Short Stories	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
209	KAZ 356	Kazakh Music History	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
210	KAZ 357	Literature of Alash	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						

211	KAZ 362	Creative Writing in Kazakh Language	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
212	KAZ 363	Language and Globalization	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
213	KAZ 364	Kazakh for Civil Service	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
214	KAZ 365	Abai’s World	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
215	KAZ 366	Kazakh Language for Engineers	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"						
Kazakh Language and Turkic Studies, Languages, Literature and Linguistics											
216	WLL 280	Introduction to Turkic Historical and Comparative Linguistics	3	6				SHSS	3 year UG SEng Civil Engineering, SST		
Languages, Literature and Linguistics											
217	CHN 101	Beginning Mandarin I	4	8				1 year UG SHSS, World Languages, Literature and Culture	1 year UG SST, 2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
218	CHN 102	Beginning Mandarin II	4	8	CHN 101 Beginning Mandarin I (1384) (C and above)			2 year UG SHSS	SHSS	3 year UG SEng Civil Engineering, SST	
219	FRE 101	Beginning French I	4	8				1 year UG SHSS, World Languages, Literature and Culture	1 year UG SST, 2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
220	FRE 201	Intermediate French I	4	8	FRE 102 Beginning French II (454) (C- and above)			SHSS	3 year UG SEng Civil Engineering, SST		
221	GER 101	Beginning German	4	8				1 year UG SHSS, World Languages, Literature and Culture	1 year UG SST, 2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
222	SPA 101	Beginning Spanish I	4	8				1 year UG SHSS, World Languages, Literature and Culture	1 year UG SST, 2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	

223	SPA 201	Intermediate Spanish I	4	8	SPA 102 Beginning Spanish II (1128) (C- and above)			SHSS	SEng, SST		
224	WLL 101	Introduction to Critical Issues in the Humanities and Social Sciences	3	6				SHSS	SEng, SST		
225	WLL 110	Introduction to Literary Studies	3	6				1 year UG SHSS	SHSS	3 year UG SEng Civil Engineering, SST	
226	WLL 111	Introduction to Theatre	3	6				1 year UG SHSS	SHSS	3 year UG SEng Civil Engineering, SST	
227	WLL 131	Introduction to Linguistics	3	6				1 year UG SHSS	SHSS	3 year UG SEng Civil Engineering, SST	
228	WLL 155	Introduction to the Comic Book	3	6				1 year UG SHSS	SHSS	3 year UG SEng Civil Engineering, SST	
229	WLL 201	World Literature I	3	6				SHSS	3 year UG SEng Civil Engineering, SST		
230	WLL 247	Survey of East Asian Literature	3	6				SHSS	3 year UG SEng Civil Engineering, SST		
231	WLL 273	Survey of Research Methods in Linguistics	3	6	LING 131 Introduction to Linguistics (1394) (C- and above)			SHSS	3 year UG SEng Civil Engineering, SST		
232	WLL 275	Language Contact in Central Asia	3	6	LING 131 Introduction to Linguistics (1394) (C- and above)			SHSS	3 year UG SEng Civil Engineering, SST		
233	WLL 321	Creative Writing/Theatre - Intermediate/Advanced	3	6				SHSS	3 year UG SEng Civil Engineering, SST		
234	WLL 333	Literary Modernism: Writing the Futility and Anarchy of Contemporary History	3	6	Subject "WLL" BETWEEN 200 and 299			SHSS	3 year UG SEng Civil Engineering, SST		
235	WLL 498	Languages and Literature Capstone I	1	2				Through Add form only			
Languages, Literature and Linguistics, Languages, Literature and Linguistics											

236	SPA 258/WLL 258	Literature and The Spanish Civil War	3	6				SHSS	3 year UG SEng Civil Engineering, SST		
237	SPA 260/WLL 260	The Spanish American Short Story	3	6	Subject "WLL" BETWEEN 100 and 199			SHSS	3 year UG SEng Civil Engineering, SST		
238	SPA 281/WLL 281	Survey of 20th Century Spanish Literature	3	6				SHSS	3 year UG SEng Civil Engineering, SST		
239	SPA 351/WLL 351	Literature and Film of the Postcolonial World	3	6	Subject "WLL" BETWEEN 200 and 299			SHSS	3 year UG SEng Civil Engineering, SST		
Languages, Literature and Linguistics, Sociology and Anthropology											
240	ANT 275/WLL 271	Language and Society	3	6				1 year UG SHSS, 2 year UG SHSS, Anthropology	SHSS	3 year UG SEng Civil Engineering, SST	
Physics											
241	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 SST	SST	SHSS	
242	PHYS 201	Introductory Astronomy I	3	6				Physics	SHSS, SST		
243	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	SHSS, SST		

244	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	SHSS, SST		
245	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	SHSS, SST		
246	PHYS 411	Advanced Mathematical Physics	3	6	MATH 274 Introduction to Differential Equations (484) (C- and above) AND PHYS 162 Physics II for Scientists and Engineers with Laboratory (173) (C- and above)			Physics	SST	SHSS	
247	PHYS 452	Quantum Mechanics II	3	6	PHYS 451 Quantum Mechanics I (1415) (C- and above)			Physics	SHSS, SST		
248	PHYS 465	Advanced Experimental Physics	3	6	PHYS 370 Optics with Laboratory (1405) (C- and above)			Physics	SHSS, SST		
249	PHYS 473	Introduction to Solid State Physics	3	6	PHYS 261 Modern Physics with laboratory (125) (C- and above) OR CHEM 331 Physical Chemistry I (634) (C- and above) OR MAE 301 Engineering Thermodynamics (5927) (C- and above) OR CHME 201 Chemical Engineering Thermodynamics (5007) (C- and above) OR ELCE 204 Solid State Devices (5508) (C- and above)			Physics	SHSS, SST		
250	PHYS 491	Directed Study of Advanced Physics Topics	3	6				Through Add form only			
251	PHYS 505	Classical Mechanics	3	6							

252	PHYS 511	Computational Modeling and Simulation	3	6							
253	PHYS 515	Classical Electrodynamics	3	6							
254	PHYS 530	Solid State Physics	3	6							
255	PHYS 545	Advanced Instrumentation Methods	3	6							
256	PHYS 550	Advanced Mathematical Physics	3	6							
257	SST 501	Teaching and Learning	3	6							
Political Science and International Relations											
258	PLS 101	Introduction to Political Science	3	6				1 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST		
259	PLS 120	Introduction to Political Theory	3	6				1 year UG SHSS	Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST	
260	PLS 140	Introduction to Comparative Politics	3	6				1 year UG SHSS	Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST	
261	PLS 150	Introduction to International Relations	3	6				1 year UG SHSS	Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST	
262	PLS 210	Political Science Research Methods	3	6				Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST		
263	PLS 211	Quantitative Methods in Political Science	3	6			ECON 211 Economic Statistics (2280) (C- and above)	Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST		
264	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	3 year UG SEng Civil Engineering, SHSS, SST		
265	PLS 325	Ancient Political Theory	3	6	PLS 120 Introduction to Political Theory (512) (C- and above)			Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST		
266	PLS 340	Politics of East Asia	3	6	PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST		

267	PLS 351	International Political Economy	3	6	PLS 150 Introduction to International Relations (511) (C- and above) AND PLS 210 Political Science Research Methods (129) (C- and above) AND PLS 211 Quantitative Methods (221) (C- and above)			Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST		
268	PLS 360	Foreign Policy Analysis	3	6	PLS 150 Introduction to International Relations (511) (C- and above)			Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST		
269	PLS 412	Scientific Research in International Relations	3	6	PLS 150 Introduction to International Relations (511) (C- and above) AND PLS 210 Political Science Research Methods (129) (C- and above) AND PLS 211 Quantitative Methods (221) (C- and above)			Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST		
270	PLS 415	Maximum Likelihood Models	3	6	PLS 210 Political Science Research Methods (129) (C- and above) OR PLS 211 Quantitative Methods (221) (C- and above)			Political Science and International Relations	3 year UG SEng Civil Engineering, SHSS, SST		
271	PLS 432	Comparative Democratization	3	6	PLS 210 Political Science Research Methods (129) (C- and above)			4 year UG SHSS Political Sciences and International Relations	3 year UG SHSS Political Sciences and International Relations	3 year UG SEng Civil Engineering, SHSS, SST	
272	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)			4 year UG SHSS Political Sciences and International Relations	3 year UG SHSS Political Sciences and International Relations	3 year UG SEng Civil Engineering, SHSS, SST	
273	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)			4 year UG SHSS Political Sciences and International Relations	3 year UG SHSS Political Sciences and International Relations	3 year UG SEng Civil Engineering, SHSS, SST	
274	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)			4 year UG SHSS Political Sciences and International Relations	3 year UG SHSS Political Sciences and International Relations	3 year UG SEng Civil Engineering, SHSS, SST	
275	PLS 469	International Relations of Eurasia	3	6	PLS 150 Introduction to International Relations (511) (C- and above) AND PLS 210 Political Science Research Methods (129) (C- and above)			4 year UG SHSS Political Sciences and International Relations	3 year UG SHSS Political Sciences and International Relations	3 year UG SEng Civil Engineering, SHSS, SST	

276	PLS 495	Research Practicum in PSIR	1	2	PLS 210 Political Science Research Methods (129) (C- and above) AND PLS 211 Quantitative Methods (221) (C- and above)						
277	PLS 511	Advanced Research I	4	8							
278	PLS 512	Scientific Research in International Relations	4	8							
279	PLS 513	Research and Writing in Political Science	4	8							
280	PLS 515	Maximum Likelihood Models	4	8	PLS 510 Quantitative Research Methods (1946) (C- and above)						
281	PLS 532	Comparative Democratization	4	8	PLS 540 Core Seminar in Comparative Politics (1374) (C- and above)						
282	PLS 540	Core seminar in comparative politics	4	8							
283	PLS 541	Advanced Topics in Comparative Politics	4	8							
284	PLS 550	Core Seminar in IR	4	8							
285	PLS 551	Advanced Topics in International Relations	4	8							
286	PLS 565	Politics of International Finance	4	8							
287	PLS 569	International Relations of Eurasia	4	8							
SSH											
288	SHSS 301	School of Humanities and Social Sciences Internship: Second Experience	3	6				Through Add form only			
Sociology and Anthropology											
289	ANT 101	Introduction to Sociocultural Anthropology	3	6				1 year UG SHSS, Anthropology	2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
290	ANT 140	World Prehistory	3	6				1 year UG SHSS, Anthropology	2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
291	ANT 179	Introduction to Biological Anthropology	3	6			ANT 361 Human Evolution: Bones, Stones and Genomes (160) (C- and above)	1 year UG SHSS, Anthropology	2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	

292	ANT 180	Being Human: An Introduction to Four Field Anthropology	3	6				1 year UG SHSS, Anthropology	2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
293	ANT 232	Archaeology of Central Asia	3	6				2 year UG SHSS, Anthropology	1 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
294	ANT 399	Special Topics in Anthropology	3	6				3 year UG SHSS, 4 year UG SHSS, Anthropology, Sociology	SHSS	3 year UG SEng Civil Engineering, SST	
295	ANT 400	Research Assistance in Anthropology	1	2				Through Add form only			
296	SOC 101	Introduction to Sociology	3	6				1 year UG SHSS, 2 year UG SHSS	SHSS	3 year UG SEng Civil Engineering, SST	
297	SOC 115	Global Social Problems	3	6				1 year UG SHSS, Sociology	2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
298	SOC 203	Quantitative Methods in Sociology	3	6				Anthropology, Sociology	SHSS	3 year UG SEng Civil Engineering, SST	
299	SOC 221	International Migration	3	6				Sociology	SHSS	3 year UG SEng Civil Engineering, SST	
300	SOC 301	Classical Sociological Theory	3	6	SOC 101 Introduction to Sociology (508) (C- and above) OR SOC 115 Global Social Problems (1032) (C- and above) OR ANT 110 Introduction to Sociocultural Anthropology (501) (C- and above)			Anthropology, Sociology	3 year UG SHSS, 4 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
301	SOC 310	Social Inequality	3	6	SOC 101 Introduction to Sociology (508) (C- and above) OR SOC 115 Global Social Problems (1032) (C- and above)			Anthropology, Sociology	3 year UG SHSS, 4 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
302	SOC 314	Organizations and Society	3	6	SOC 101 Introduction to Sociology (508) (C- and above) OR SOC 115 Global Social Problems (1032) (C- and above)			Anthropology, Sociology	SHSS	3 year UG SEng Civil Engineering, SST	

303	SOC 317	Economy and Society	3	6	SOC 101 Introduction to Sociology (508) (C- and above) OR Subject "SOC" BETWEEN 200 and 299 OR Subject "SOC" BETWEEN 200 and 299 OR ECON 102 Introduction to Macroeconomics (503) (C- and above) OR PLS 120 Introduction to Political Theory (512) (C- and above) OR PLS 150 Introduction to International Relations (511) (C- and above)			Sociology	Economics	3 year UG SEng Civil Engineering, SHSS, SST	
304	SOC 399	Special Topics in Sociology	3	6				Anthropology, Sociology	3 year UG SHSS, 4 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
305	SOC 400	Research Assistance in Sociology	1	2				Through Add form only			
Sociology and Anthropology, Sociology and Anthropology											
306	ANT 216	Marriage and Kinship	3	6				1 year UG SHSS, 2 year UG SHSS, Anthropology	SHSS	3 year UG SEng Civil Engineering, SST	
307	ANT 285/SOC 212	Food and Society	3	6				Anthropology, Sociology	1 year UG SHSS, 2 year UG SHSS	3 year UG SEng Civil Engineering, SHSS, SST	
SEDS											
Chemical Engineering											
308	MCHE 613	Physical Chemistry of Oil & Gas	1.5	3							
309	MCHE 614	Applied Chemical Engineering Thermodynamics	1.5	3							
310	MCHE 615	Advanced Unit Operations	1.5	3							
311	MCHE 616	Advanced Chemical Reactor Engineering	1.5	3	ECHE 481 Chemical Reaction Engineering (1985) (D and above)						
312	MCHE 618	Plant Economics and Planning	1.5	3							
313	MCHE 619	Safety Engineering and Loss Prevention	1.5	3							
Civil Engineering											
314	MCE 601	Sustainable Development	3	6							
315	MCE 604	Advanced Project Management	3	6							

316	MCE 606	Environmental Impacts and Assessments	3	6							
317	MSC 616	Research Methods	3	6							
Electrical and Electronic Engineering											
318	MEE 600	MSc Thesis in Electrical and Electronics Engineering	15	30							
319	MEE 607	Advanced Signal Processing	3	6							
320	MEE 608	Mixed Signal Circuits and Systems	3	6							
Information and Communication Technologies											
321	EICT 754	Information Theory for Communications	3	6							
Mechanical Engineering											
322	MME 600	Master Thesis in Mechanical Engineering	15	30							
323	MME 604	Engineering Mathematics	3	6							
324	MME 605	Numerical Techniques for Engineers	3	6							
325	MME 606	Advanced Control Systems	3	6							
School of Engineering											
326	BENG 117	Engineering Mechanics	3	6							
327	BENG 124	Engineering Mathematics I	3	6							
328	BENG 145	Occupal and Environment Health and Safety	3	6							
329	BENG 146	Programming for Engineers	3	6							
330	BENG 201	Engineering Economy	3	6							
331	BENG 215	Sensors and Actuators	3	6							
332	BENG 221	Engineering Materials	3	6							
333	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											

334	ECHE 126	Introduction to Chemical Engineering	3	6							
335	ECHE 222	Chemistry I	3	6							
336	ECHE 319	Chemical Engineering Thermodynamics	3	6							
337	ECHE 321	Chemistry II	3	6							
338	ECHE 331	Process Control and Optimization	3	6							
339	ECHE 333	Separation Processes-I	3	6	ECHE 319 Chemical Engineering Thermodynamics (1218) (D and above)						
340	ECHE 369	Transport Phenomena-II	3	6							
341	ECHE 418	Capstone project 1	3	6	ECHE 323 Computational methods in Chemical Engineering-I (1272) (D and above)						
342	ECHE 419	Advanced Process Simulation	3	6	ECHE 323 Computational methods in Chemical Engineering-I (1272) (D and above)						
343	ECHE 482	Computational Methods in Chemical Engineering-II	3	6	ECHE 319 Chemical Engineering Thermodynamics (1218) (D and above) AND ECHE 333 Separation Processes-I (1271) (D and above) AND ECHE 383 Separation Processes II (1982) (D and above) AND ECHE 481 Chemical Reaction Engineering (1985) (D and above) AND ECHE 323 Computational methods in Chemical Engineering-I (1272) (D and above)						
344	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)						
Civil Engineering											
345	MSC 615	Advanced Statistics and Probability	3	6							
Civil and Environmental Engineering											
346	ECE 215	Surveying	3	6							
347	ECE 216	Civil Engineering CAD	3	6							

348	ECE 217	Structural Analysis I	3	6	BENG 117 Engineering Mechanics (740) (D and above)						
349	ECE 300	Hydraulic Systems	3	6							
350	ECE 303	Construction Management and Practice	3	6	BENG 148 Engineering Practice (1073) (D and above)						
351	ECE 307	Engineering Geology and Rock Mechanics	3	6							
352	ECE 314	Structural Engineering Applications I	3	6	ECE 213 Structural Engineering Analysis (863) (D and above) OR ECE 217 Structural Analysis I (3156) (D and above)						
353	ECE 401	Capstone Project 1	3	6							
354	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)						
355	ECE 416	Highway Engineering	3	6	ECE 302 Civil Engineering Materials (1040) (D and above)						
356	ECE 473	Environmental Systems	3	6							
357	EMEM 502	Decision Models	1.5	3							
358	EMEM 505	Operations Management	1.5	3							
359	EMEM 507	Project Management	3	6							
360	EMEM 509	Systems Engineering	3	6							
361	EMEM 513	Entrepreneurship	1.5	3							
362	EMEM 519	Product Development	1.5	3							
363	EMEM 522	Quality Management	1.5	3							
364	EMEM 523	Supply Chain Management	1.5	3							
365	EMEM 528	Information Systems Management	1.5	3							
366	EMEM 530	Technology Assessment	1.5	3							
367	EMEM 533	Engineering Management and Engineering Economy	3	6							
Electrical and Computer Engineering											

368	EEE 238	Digital Signal and Image Processing	3	6							
369	EEE 250	Microelectronic Devices and Circuits	3	6	BENG 114 Introduction to Electrical Systems (1076) (D and above)						
370	EEE 251	Electronic Engineering Design Principles	3	6	BENG 114 Introduction to Electrical Systems (1076) (D and above)						
371	EEE 341	Digital Electronic System Design	3	6							
372	EEE 342	Electromagnetics	3	6							
373	EEE 343	Embedded Microcontrollers	3	6							
374	EEE 345	Power Electronics	3	6	ELCE 201 Circuit Theory (5507) (D and above)						
375	EEE 382	Antennas and Propagation	3	6							
376	EEE 435	Advanced Digital Communications	3	6							
377	EEE 437	Capstone Project 1	3	6							
378	EEE 448	Power Transmission and Distribution plants	3	6							
379	EEE 450	RF and Microwave Circuit Design	3	6							
380	EEE 451	High Voltage Engineering	3	6							
381	EEE 452	Power Systems Protection	3	6	ELCE 303 Power System Analysis (6180) (D and above)						
Mechanical and Aerospace Engineering											
382	EME 253	Computer Aided Engineering	3	6							
383	EME 254	Mechanics of Materials	3	6							
384	EME 352	Computational Fluid Dynamics	3	6							
385	EME 357	Fluid Mechanics II	3	6							
386	EME 358	Heat Transfer	3	6	BENG 226 Engineering Thermodynamics (1553) (D and above) AND EME 275 Fluid Mechanics I (1988) (D and above)						
387	EME 361	Machine Design	3	6							
388	EME 451	Capstone Project 1	3	6							
389	EME 464	Materials and Manufacturing I	3	6							
390	EME 467	Vehicle Propulsion Systems	3	6							

391	EME 485	Applied Statistics and Probability	3	6	EME 485 Applied Statistics and Probability (2236) (D and above)						
392	EME 486	Oscillation of Mechanical Systems	3	6							
School of Engineering											
393	BENG 405	Project Management	3	6							
394	DENG 782	Personal and Professional Skills Development	1.5	3							
395	DENG 784	Doctoral Proposal I	0	6							
396	DENG 785	PhD Proposal Oral Defence	0	0							
397	DENG 794	Dissertation Research	12	24	DENG 785 PhD Proposal Oral Defence (2604) (P)						
SCAI											
Computer Science											
398	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	SST	SHSS	
399	CSCI 231	Computer Systems and Organization	3	6	CSCI 151 Programming for Scientists and Engineers (192) (C- and above)			Computer Science	SST	SHSS	
400	CSCI 241	Database Systems	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science	SST	SHSS	
401	CSCI 262	Software Project Management	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science	SST	SHSS	
402	CSCI 281	Human-Computer Interaction	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science	SST	SHSS	

403	CSCI 325	Introduction to Parallel Systems and Graphics Processing Unit Programming	3	6	CSCI 332 Operating Systems (490) (C- and above)		PHYS 421 Parallel Computing (8532) (D and above)	Computer Science	SST	SHSS	
404	CSCI 330	Mobile Computing	3	6	CSCI 332 Operating Systems (490) (C- and above)			Computer Science	SST	SHSS	
405	CSCI 361	Software Engineering	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science	SST	SHSS	
406	CSCI 390	Artificial Intelligence	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science	SST	SHSS	
407	CSCI 398	Directed Study	3	6							
408	CSCI 408	Senior Project I	3	6				CS major only			
409	CSCI 434	Information Security	3	6		CSCI 333 Computer Networks (1145) (D and above)		Computer Science	SST	SHSS	
410	CSCI 471	Complexity and Computability	3	6	MATH 251 Discrete Mathematics (85) (C- and above)			Computer Science	SST	SHSS	
411	CSCI 501	Software Principles and Practice	3	6							
412	CSCI 512	Information Theory	3	6							
413	CSCI 525	Quantum Computing	3	6							
414	CSCI 531	Distributed Systems	3	6							
415	CSCI 545	Big Data Analytics	3	6							
416	SST 503	Laboratory Practicum	3	6	SEDS 502 Teaching Practicum (2824) (P)						
417	SST 591	Research Methods	3	6							
418	SST 693	Thesis Proposal	3	6	SEDS 591 Research Methods (3184) (C- and above)						
Mathematics											
419	MATH 109	Mathematical Discovery	3	6			MATH 161 Calculus I (118) (C- and above)	SHSS	SST		
420	MATH 161	Calculus I	4	8				1 year UG SST	SST	SHSS	

421	MATH 162	Calculus II	4	8	MATH 161 Calculus I (118) (C and above)			3 year UG SHSS, 4 year UG SHSS, SST	SHSS		
422	MATH 251	Discrete Mathematics	3	6	MATH 161 Calculus I (118) (C and above)			Computer Science, Physics, Robotics and Mechatronics, Undeclared	Mathematics, SHSS		
423	MATH 263	Calculus III	4	8	MATH 162 Calculus II (170) (C and above)			4 year UG SHSS, SST	SHSS		
424	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		
425	MATH 274	Introduction to Differential Equations	3	6	MATH 162 Calculus II (170) (C and above)			4 year UG SHSS, SST	SHSS		
426	MATH 301	Introduction to Number Theory	3	6	MATH 273 Linear Algebra with Applications (84) (C and above) AND MATH 251 Discrete Mathematics (85) (C and above)			Mathematics	SHSS, SST		
427	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		
428	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		

429	MATH 351	Introduction to 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		
430	MATH 355	Introduction to Proofs	3	6	MATH 162 Calculus II (170) (C and above) AND MATH 273 Linear Algebra with Applications (84) (C and above)			Mathematics	SHSS, SST		
431	MATH 361	Introductory 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		
432	MATH 399	Internship	3	6							
433	MATH 402	Abstract Algebra I	3	6	MATH 273 Linear Algebra with Applications (84) (C and above) AND MATH 251 Discrete Mathematics (85) (C and above)			Mathematics	SHSS, SST		
434	MATH 411	Linear Programming	3	6	MATH 273 Linear Algebra with Applications (84) (C and above) AND MATH 263 Calculus III (81) (C and above)			Mathematics	SHSS, SST		
435	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		
436	MATH 440	Regression Analysis	3	6	MATH 322 Mathematical Statistics (1165) (C and above)		SOC 203 Quantitative Methods in Sociology (1377) (C and above) OR PLS 211 Quantitative Methods (221) (C and above)	Mathematics	SHSS, SST		
437	MATH 449	Statistical Programming	3	6	MATH 322 Mathematical Statistics (1165) (C and above)			Mathematics	SHSS, SST		
438	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		
439	MATH 480	Complex Analysis	3	6	MATH 263 Calculus III (81) (C and above)			Mathematics	SHSS, SST		

440	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	SST	SHSS	
Robotics and Mechatronics											
441	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	SHSS	
442	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	SHSS	
443	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	SHSS	
444	ROBT 301	Mechanical Design I	3	6	ROBT 201 Mechanics: Statics and Dynamics (475) (C- and above)			Robotics and Mechatronics	SST	SHSS	
445	ROBT 303	Linear Control Theory with Lab	4	8	ROBT 202 System Dynamics and Modeling (68) (C- and above)			Robotics and Mechatronics	SST	SHSS	
446	ROBT 305	Embedded Systems	3	6	ROBT 206 Microcontrollers with Lab (476) (C- and above)			Robotics and Mechatronics	SST	SHSS	
447	ROBT 307	Power Electronics	3	6	ROBT 204 Electrical and Electronic Circuits II with Lab (491) (C- and above)			Robotics and Mechatronics	SST	SHSS	
448	ROBT 401	Robot Dynamics and Control	3	6	ROBT 303 Linear Control Theory with Lab (623) (C- and above)			Robotics and Mechatronics	SST	SHSS	

449	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	SHSS	
450	ROBT 501	Robot Manipulation and Mobility	3	6							
451	ROBT 503	Dynamic Systems and Control	3	6							
452	ROBT 605	Robotic Motion Planning	3	6	ROBT 501 Advanced Robot Kinematics (2263) (C- and above) AND CSCI 501 Software Principles and Practice (2408) (C- and above)						
453	ROBT 611	Industrial Robotics	3	6	ROBT 501 Advanced Robot Kinematics (2263) (C- and above)						