Course Requirements and Registration Priorities
Spring 2020

#	Abbr	Title	Cr(US)	Cr(ECTS)	PreRequisite	CoRequisite	AntiRequisite	1st priority registration	2nd priority registration	3rd priority registration	4th priority registration
CPS											
GSPP											
1	ZEST 061	Basic Economics and Statistics	0	0							
Mathematics											
2	MATH 500Z	Linear Algebra with Applications	0	0							
NUFYP											
3	FBIO 011	Introduction to Biology	0	0							
4	FBUS 011	Introduction to Business	0	0							
5	FCHM 011	Introduction to Chemistry	0	0							
6	FEAP 020	Foundation English for Academic Purposes 2	0	0							
7	FGEO 011	Introduction to Geography	0	0							
8	FHUM 011	Introduction to Humanities and Social Science	0	0							
9	FMAT 041	Foundation Mathematics 2	0	0							
10	FPHY 011	Introduction to Physics	0	0							
NUZYP											
11	ZCOM 041	Academic Communications for Graduate Studies II	0	0							
12	ZRDG 031	Academic Reading for Graduate Studies II	0	0							
13	ZWRT 021	Academic Writing for Graduate Studies II	0	0							
Sociology and Anthropology											
14	SOC 201Z	Social Science Research Methods	0	0							
GSB											
Economics											
15	ECON 101	Introduction to Microeconomics	3	6				Undeclared SSH	1 year UG SEDS, 1 year UG SMG, 1 year UG SOM, 1 year UG SSH	SEDS, SMG, SSH, SoM	

16	ECON 102	Introduction to Macroeconomics	3	6				Undeclared SSH	1 year UG SEDS, 1 year UG SMG, 1 year UG SOM, 1 year UG SSH	SEDS, SMG, SSH, SoM	
17	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	2 year UG SSH Undeclared	SSH	
18	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	2 year UG SSH Undeclared	SSH	
19	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	2 year UG SSH Undeclared	SSH	
20	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)						

21	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		SSH	
22	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)	3 year UG SSH Economics	4 year UG SSH Economics	SSH	
23	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)	3 year UG SSH Economics	4 year UG SSH Economics	SSH	
24	ECON 328	Labor Economics	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			3 year UG SSH Economics	4 year UG SSH Economics	SSH	
25	ECON 332	Urban Economics	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above)			3 year UG SSH Economics	4 year UG SSH Economics	SSH	
26	ECON 399	Independent Study in Economics	3	6				Instructor's Permission Required			
27	ECON 413	Econometrics II	3	6	ECON 301 Econometrics I (664) (C- and above)			Economics		SSH	
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		SSH	

29	ECON 428	Wages and the Labor Market	3	6	ECON 201 Intermediate Microeconomics (133) (C- and above) AND ECON 301 Econometrics I (664) (C- and above)			Economics		SSH	
30	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)			Economics		SSH	
31	ECON 516	Empirical Industrial Organization	4	8	ECON 501 Microeconomics (2187) (C- and above) AND ECON 531 Econometrics (2505) (C- and above)			Economics			
32	ECON 521	Microeconomic Theory II	4	8	ECON 501 Microeconomics (2187) (C- and above) AND ECON 512 Mathematical Economics (2154) (C- and above)			Economics			
33	ECON 522	Macroeconomics II	4	8	() (and above)			Economics			
34	ECON 524	Research Methodology	4	8	ECON 501 Microeconomics (2187) (C- and above) AND ECON 502 Macroeconomics (2186) (C- and above) AND ECON 511 Mathematics and Statistics (2188) (C- and above)	ECON 531 Econometrics (2505) (D and above)		Economics			
35	ECON 528	Wages and the Labor Market	4	8	ECON 521 Microeconomic Theory II (2506) (C- and above) AND ECON 531 Econometrics (2505) (C- and above)			Economics			
36	ECON 531	Econometrics	4	8	ECON 511 Mathematics and Statistics (2188) (C- and above) AND ECON 512 Mathematical Economics (2154) (C- and above)			Economics			

37	ECON 543	Topics in Macroeconomic Theory	4	8	ECON 502 Macroeconomics (2186) (C- and above)			Economics			
38	ECON 590	Thesis II	8	16	ECON 589 Thesis I (3714) (P)			2 year Gr SSH Economics			
GSB											
39	GSBF 513	Financial Econometrics	2	4				Registration by School Admin only			
40	GSBF 515b	Investments II	2	4	GSBF 515a Investments I (4106) (C- and above)			Registration by School Admin only			
41	GSBF 517	Financial Economics	2	4				Registration by School Admin only			
42	GSBF 520	Empirical Asset Pricing	2	4				Registration by School Admin only			
43	GSBF 541	Global Finance Experience Residency (I)	2	4				Registration by School Admin only			
44	MBA 09	Marketing Management	2	4				Registration by School Admin only			
45	MBA 10	Foundations of Strategy	2	4				Registration by School Admin only			
46	MBA 13	Macroeconomics	2	4				Registration by School Admin only			
47	MBA 15	Corporate Finance	2	4				Registration by School Admin only			
48	MBA 16	Entrepreneurship	2	4				Registration by School Admin only			
49	MBAE 16	Project Management	2	4							
50	MBAE 18	Consumer Behavior	2	4							
51	MBAE 19	Global Economics for Managers	2	4	MBA 08 Managerial Economics (1722) (C and above)						
52	MBAE 4	Pricing	2	4							
53	MSF 01	Financial Modeling	2	4				Registration by School Admin only			
GSPP											
Master in Public Administration											
54	MPA 608	Strategic Management and Leadership	4	8				1 year GSPP Public Administration			
55	MPA 610	National Identity and Public Policy	4	8				1 year GSPP Public Administration	1 year GSPP Public Policy, 2 year GSPP Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
56	MPA 611	Benefit Cost Analysis	4	8				1 year GSPP Public Administration	1 year GSPP Public Policy, 2 year GSPP Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	

57	MPA 623	Law and Development	4	8				1 year GSPP Public Administration	1 year GSPP Public Policy, 2 year GSPP Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
58	MPA 644	The Media and Public Policy	4	8				1 year GSPP Public Administration	1 year GSPP Public Policy, 2 year GSPP Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
59	MPA 699	Master's Project with Overseas Component	0	0				1 year GSPP Public Administration			
60	MPP 638	Terrorism and Counterterrorism Policy	4	8				GSPP	GSB, GSE, SEDS, SMG, SSH, SoM		
61	MPP 663	Applied Public Economics and Finance	4	8	MPP 601 Microeconomics and Public Policy (1449) (B- and above) OR MPA 603 Economic Applications for Public Managers (2074) (B- and above)			2 year GSPP Public Policy	1 year GSPP Public Administration, 2 year GSPP Public Administration	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
62	MPP 681	Natural Resource Management and Policy	4	8				1 year GSPP PhD Public Policy, 1 year GSPP Public Administration, 2 year GSPP Public Policy, GSPP			
63	MPP 682	Sustainable Development and Environmental Governance	4	8				1 year GSPP PhD Public Policy, 1 year GSPP Public Administration, 2 year GSPP Public Policy, GSPP			
64	MPP 688	New Technologies and Public Policy	4	8				1 year GSPP PhD Public Policy, 1 year GSPP Public Administration, 2 year GSPP Public Policy, GSPP			
65	MPP 689	Data Analytics for Public Policy	4	8				Public Administration, Public Policy			
Master in Public Policy											
66	MPP 602	Macroeconomics and Public Policy	4	8				1 year GSPP Public Policy			
67	MPP 613	Public Policy Research Design and Analysis	4	8				1 year GSPP Public Policy			
68	MPP 641	Public Management and Leadership	4	8				1 year GSPP Public Policy			

69	MPP 699	Policy Analysis Exercise with Singapore Component	8	16	MPP 601 Microeconomics and Public Policy (1449) (C- and above) AND MPP 611 Statistics for Public Policy (1450) (C- and above) AND MPP 613 Policy Research Design and Methods (1301) (C- and above) AND MPP 621 Public Policy and Analysis (1451) (C- and above)			2 year GSPP Public Policy			
70	MPP 699-0	Policy Analysis Exercise with Singapore Component	0	0	MPP 613 Policy Research Design and Methods (1301) (C- and above)						
PhD in Public Policy											
71	DPP 600	Developing Dissertation Research	0	0				Registration by School Admin only			
72	DPP 602	Macroeconomics in Public Sector	4	8				1 year GSPP PhD Public Policy			
73	DPP 613	Research Design (qualitative and quantitative)	4	8				1 year GSPP PhD Public Policy			
74	DPP 621	Public Policy and Analysis	4	8				1 year GSPP PhD Public Policy			
75	DPP 631	Politics of Public Policy	4	8				1 year GSPP PhD Public Policy			
76	DPP 689	PhD Qualifying Examination	6	12							
77	DPP 689-0	PhD Qualifying Examination: Core Exam	0	0				2 year GSPP PhD Public Policy			
78	DPP 690-0	Thesis Preparation and Writing	0	0				Registration by School Admin only			
79	DPP 699	Thesis Design and Written Proposal	6	12				2 year GSPP PhD Public Policy			
GSE											
MA in Multilingual Education											
80	EDML 612	Multilingual Society	3	6				1 year GSE MA in Multil.Education			
81	EDML 613	The Multilingual School	3	6				2 year GSE MA in Multil.Education			
82	EDML 620	Language and Literacy Development	3	6				Registration by School Admin only			
83	EDML 630	Language Policy and Education Reform Across Contexts	3	6				1 year GSE MA in Multil.Education			

84	EDML 691	Thesis Research II	6	12				2 year GSE MA in Multil.Education			
MSc Educational Leadership HE											
85	EDHE 692	Thesis Seminar III	4.5	9				2 year GSE Educ.Leadership			
86	EDUC 506	Academic English II	1.5	3				1 year GSE Educ.Leadership			
87	EDUC 508	Academic English IV	1.5	3				2 year GSE Educ.Leadership			
88	EDUC 511	Advanced English for Education Professionals II	3	6				1 year GSE MA in Multil.Education			
89	EDUC 513	English for Thesis Writing II	3	6				2 year GSE MA in Multil.Education			
90	EDUC 572	Kazakh for Professional Purposes	3	6				1 year GSE Educ.Leadership, 1 year GSE MA in Multil.Education, 1 year GSE PhD Education			
91	EDUC 591	Academic English Writing for Doctoral Students II	3	6				2 year GSE PhD Education			
92	EDUC 600	Research Methods II	3	6				1 year GSE Educ.Leadership, 1 year GSE MA in Multil.Education			
93	EDUC 670	Internship Project	6	12				Registration by School Admin only			
94	EDUC 671	Work-based project	6	12				Registration by School Admin only			
95	EDUC 675	Learning to Work	4.5	9				Registration by School Admin only			
96	EDUC 704	Advanced Methods of Education Research	3	6				1 year GSE PhD Education			
97	EDUC 705	Advanced Methods of Education Research: Qualitative Methods	3	6				1 year GSE PhD Education			
98	EDUC 711	Globalisation and Education	3	6				1 year GSE PhD Education			
99	EDUC 731	Proposal Defence	3	6				Registration by School Admin only			
100	EDUC 740	Doctoral Seminar	3	6				Registration by School Admin only			
101	EDUC 750	Dissertation Research	9	18				Registration by School Admin only			
102	EDUC 760	Teaching and Learning in the University Context: Curriculum, Pedagogy and Assessment	3	6				3 year GSE PhD Education			

MSc Educational Leadership IE											
103	EDIE 691	Thesis Seminar II	3	6							
104	EDIE 692	Thesis Seminar III	4.5	9				2 year GSE Educ.Leadership			
MSc Educational Leadership SE											
105	EDSE 692	Thesis Seminar III	4.5	9				2 year GSE Educ.Leadership			
106	EDSE 693	Thesis Seminar IV	9	18							
Other											
Other											
107	T - 16721	Economic Sociology	3	6							
108	T - 16722	Sociology of Population	3	6							
109	T - 16783	Sociology of Organizations	3	6							
110	T - 19152	Economic Development	3	6							
111	T - 19154	Anthropology of Migrations and Transnationalism	3	6							
112	T - 19158	European Institutions and Governance	3	6							
113	T - 19164	Early Modern and Modern Political Thought	3	6							
114	T - 19501	Sociology of Information and Knowledge	3	6							
115	T-MOA 106	Developing and Marketing Innovations	3	6							
116	T-OFF 510	Operations and Maintenance Management	1.5	3							
117	T-OFF 540	Condition Monitoring and Management	1.5	3							
118	TEST 001	TEST 1	3	6							
SoM											
Biological Science											
119	BIOL 101	Biology for non-Science majors	3	6			BIOL 110 Modern Biology I (1070) (C- and above)	Anthropology, Economics, History, Political Science and International Relations, Sociology, Undeclared SSH, World Languages, Literature and Culture			

120	BIOL 110	Modern Biology I	3	6				Biological Sciences, Chemistry	Computer Science, Mathematics, Physics, Robotics and Mechatronics	Anthropology, Economics, History, Political Science and International Relations, Sociology, Undeclared SSH, World Languages, Literature and Culture	
121	BIOL 110L	Modern Biology I Laboratory	1	2		BIOL 110 Modern Biology I (1070) (C and above)		Biological Sciences, Chemistry	Computer Science, Mathematics, Physics, Robotics and Mechatronics	Anthropology, Economics, History, Political Science and International Relations, Sociology, Undeclared SSH, World Languages, Literature and Culture	
122	BIOL 120	Modern Biology II	3	6	BIOL 110 Modern Biology I (1070) (C and above)			Biological Sciences, Chemistry	Computer Science, Mathematics, Physics, Robotics and Mechatronics	Anthropology, Economics, History, Political Science and International Relations, Sociology, Undeclared SSH, World Languages, Literature and Culture	
123	BIOL 120L	Modern Biology II Laboratory	1	2	BIOL 110 Modern Biology I (1070) (C and above) OR BIOL 110L Modern Biology I Laboratory (5448) (C and above)	BIOL 120 Modern Biology II (1195) (C and above)		Biological Sciences, Chemistry	Computer Science, Mathematics, Physics, Robotics and Mechatronics	Anthropology, Economics, History, Political Science and International Relations, Sociology, Undeclared SSH, World Languages, Literature and Culture	

124	BIOL 231	Human Anatomy and Physiology II	4	8	BIOL 230 Human Anatomy and Physiology I (72) (C and above)			Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
125	BIOL 301	Molecular Biology of Cell with Lab	4	8	BIOL 120 Modern Biology II (177) (C and above) OR BIOL 120 Modern Biology II Lab (1445) (C and above) OR BIOL 120L Modern Biology II Laboratory (5443) (C and above)			Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
126	BIOL 341	Biochemistry I	3	6	CHEM 211 Organic Chemistry I (154) (C and above)			Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
127	BIOL 341L	Biochemistry I Lab	1	2		BIOL 341 Biochemistry I (2002) (C and above)		Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
128	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	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
129	BIOL 370	Genetics	3	6	BIOL 120 Modern Biology II (1195) (C and above)			Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	

130	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	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
131	BIOL 420	Bioethics	3	6	BIOL 120 Modern Biology II (1195) (C and above)			4 year UG SSH Biological Sciences, 4 year UG SSH Chemistry	3 year UG SSH Biological Sciences, 3 year UG SSH Chemistry	SEDS, SMG, SSH, SoM	
132	BIOL 430	Histology with Laboratory	4	8	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	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
133	BIOL 440	Neuroscience	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	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
134	BIOL 445	Medical Microbiology	3	6	BIOL 305 Introduction to Microbiology (5789) (C and above) OR BIOL 305 Introduction to Microbiology with Lab (1642) (C and above)			Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
135	BIOL 450	Food Microbiology	3	6	BIOL 305 Introduction to Microbiology with Lab (1642) (C and above) OR BIOL 305 Introduction to Microbiology (5789) (C and above)			Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
136	BIOL 450L	Food Microbiology Lab	1	2	BIOL 305 Introduction to Microbiology with Lab (1642) (C and above) OR BIOL 305 Introduction to Microbiology (5789) (C and above)	BIOL 450 Food Microbiology (4609) (C and above)		Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	

137	BIOL 456	Biology Research Design	3	6		BIOL 355 Critical Research Reasoning (1000) (C and above)		Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
138	BIOL 471	Light and Electron microscopy concepts and techniques	3	6	BIOL 110 Modern Biology I (1070) (C and above) AND BIOL 120 Modern Biology II (1195) (C and above) AND CHEM 101 General Chemistry I (113) (C and above) AND PHYS 161 Physics I for Scientists and Engineers with Laboratory (116) (C and above)			Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
139	BIOL 471L	Light and Electron Microscopy Concepts and Techniques-Lab	1	2		BIOL 471 Light and Electron microscopy concepts and techniques (4686) (C and above)		Biological Sciences	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
140	BIOL 491	Graduation Project 2	4	8	BIOL 490 Honors Thesis Research (1581) (C and above)			Instructor's Permission Required			
141	BIOL 492	Directed Study in Biology	3	6				Instructor's Permission Required			
142	BIOL 570	Advanced Biotechnology	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
143	BIOL 580	Applied Bioinformatics	3	6	BIOL 520 Statistical Methods in Life Sciences (1203) (C and above)			Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
144	BIOL 590	Research Analysis in Life Sciences	3	6				1 year Gr SSH Biological Sciences and Technologies			
145	BIOL 591	Cellular Biophysics	3	6				Biological Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
146	BIOL 737	Advanced Optical and Electron Microscopy	4	8				1 year PhD SEDS Science, Engineering and Technology	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
147	BIOL 770	Advanced Biotechnology	4	8				1 year PhD SEDS Science, Engineering and Technology	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	

148	BIOL 780	Applied Bioinformatics	4	8				1 year PhD SEDS Science, Engineering and Technology	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
149	BIOL 791	Cellular Biophysics	4	8				1 year PhD SEDS Science, Engineering and Technology	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
150	BIOL 800-0	Thesis Research	0	0				1 year PhD SEDS Science, Engineering and Technology	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM	
MMM											
151	MMMM 508	Molecular Immunology	2	4				For YR 1 MMM only. Registration by School Admin.			
152	MMMM 509	From the Bench to the Bedside: Drug Development and Clinical Trials	3	6				For YR 1 MMM only. Registration by School Admin.			
153	MMMM 510	Natural Medicine	3	6				For YR 1 MMM only. Registration by School Admin.			
154	MMMM 511	Research Methods in Molecular Biomedicine	3	6				For YR 1 MMM only. Registration by School Admin.			
155	MMMM 512	Molecular Basis of Chronic Inflammation	1	2				For YR 1 MMM only. Registration by School Admin.			
156	MMMM 690	Master Research Project	15	30				For YR 2 MMM only. Registration by School Admin.			
Master of Sciences in Biomedicine											
157	MMMM 507	Critical Analysis of the Contemporary Concepts in Molecular Medicine	3	6				For YR 1 MMM only. Registration by School Admin.			
Medicine											
158	MHPW 200	Health, Physical Fitness and Well Being	3	6				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
Nursing											
159	NUR 102L	Human Anatomy and Physiology II with Lab	4	8				Nursing			
160	NUR 103L	Microbiology for Nurses with Lab	4	8				Nursing			
161	NUR 305	Research Methods for Nursing	3	6				For BApN only. Registration by School Admin.			
162	NUR 306	Medical-Surgical Nursing: Complex Medical Management for Acute and Chronic Patient	4	8				For BApN only. Registration by School Admin.			

163	NUR 307	Health Promotion and Disease Prevention in Culturally Diverse Populations	4	8				For BApN only. Registration by School Admin.			
164	NUR 308	Enhanced Communication in Professional Nursing	4	8				For BApN only. Registration by School Admin.			
Public Health											
165	PUBH 512	Biostatistical Modeling and Sampling	3	6				For YR 1 PUBH only. Registration by School Admin.			
166	PUBH 522	Advanced Analytical Epidemiology	3	6				For YR 1 PUBH only. Registration by School Admin.			
167	PUBH 551	Health Services Management, Health Economic and Health Policy	3	6				For YR 1 PUBH only. Registration by School Admin.			
168	PUBH 631	Social and Behavioral Sciences in Public Health	3	6				For YR 1 PUBH only. Registration by School Admin.			
169	PUBH 641	Problem Investigations in Environmental Health	3	6				For YR 1 PUBH only. Registration by School Admin.			
170	PUBH 651	Risk Management in Health Care	3	6				For YR 2 PUBH only. Registration by School Admin.			
171	PUBH 652	Applied Methods in Health Services Research	3	6				For YR 2 PUBH only. Registration by School Admin.			
172	PUBH 682	Master's Project Implementation	12	24				For YR 2 PUBH only. Registration by School Admin.			
SSH											
Academic Success Centre, Communication and Composition											
173	SHSS 150	Rhetoric and Composition	3	6				1 year UG SEDS, 1 year UG SMG, 1 year UG SOM, 1 year UG SSH		2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	

174	SHSS 210	Technical and Professional Writing	3	6	ASC 100 Advanced English for Academic Purposes (9234) (C- and above) OR Test "IELTS" BETWEEN 6.5 and 9 OR WCS 150/ASC 100 Advanced English for Academic Purposes (2183) (C- and above)		WCS 200 Introduction to Public Speaking (175) (D and above) OR WCS 220 Science Writing (5686) (D and above) OR WCS 230 Say What you Mean: Clarity, Precision, and Style in Academic Writing (3026) (D and above) OR WCS 240 Writing for Digital Media (4421) (D and above) OR WCS 250 Advanced Rhetoric and Composition (3027) (D and above) OR WCS 260/WLL 235 Creative Writing: Introduction to Fiction Writing I (4000) (D and above) OR WCS 270 Academic and Professional Presentations (8409) (D and above)	2 year UG SEDS, 2 year UG SMG	2 year UG SOM, 2 year UG SSH	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	
Area Studies											
175	EAS 502	Disciplinary Methodology	4	8				SSH	GSB, GSE, GSPP, SEDS, SMG, SoM		
176	EAS 504	Thesis II	12.5	25	EAS 500 Introduction to Eurasia (1632) (C- and above) AND EAS 501 General Methodology (1633) (C- and above) AND EAS 502 Disciplinary Methodology (1379) (C- and above) AND EAS 503 Thesis I (2141) (C- and above)			GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			

177	EAS 511	Independent Study in Eurasian Studies	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
178	EAS 702	Elective in Eurasian Humanities	4	8				Instructor's Permission Required			
179	EAS 703	Elective in Eurasian Social Sciences	4	8				Instructor's Permission Required			
180	EAS 708	Proseminar in Eurasian Humanities	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
181	EAS 709	Proseminar in Eurasian Social Sciences	4	8				Instructor's Permission Required			
182	EAS 710	Independent Study in Eurasian Studies	4	8				Instructor's Permission Required			
Chemistry											
183	CHEM 092	Survey of Environmental Sciences for Non-Science Majors	3	6				Anthropology, Economics, History, Nursing, Political Science and International Relations, Sociology, Undeclared SSH, World Languages, Literature and Culture			
184	CHEM 101	General Chemistry I	3	6				Biological Sciences, Chemistry	SEDS, SMG, SSH, SoM		
185	CHEM 101L	General Chemistry I lab	1	2		CHEM 101 General Chemistry I (113) (C and above)		Biological Sciences, Chemistry	SEDS, SMG, SSH, SoM		
186	CHEM 102	General Chemistry II	3	6	CHEM 101 General Chemistry I (113) (C and above)			Biological Sciences, Chemistry, SMG	SEDS, SSH, SoM		
187	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)		Biological Sciences, Chemistry, SMG	SEDS, SSH, SoM		
188	CHEM 189c	Independent Study	3	6				Instructor's permission required			
189	CHEM 211	Organic Chemistry I	3	6	CHEM 102 General Chemistry II (232) (C and above)			Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	
190	CHEM 211L	Organic Chemistry I Lab	1	2	CHEM 101L General Chemistry I lab (179) (C and above)	CHEM 211 Organic Chemistry I (154) (C and above)		Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	

191	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	SEDS, SMG, SSH, SoM	
192	CHEM 212L	Organic Chemistry II Lab	1	2	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	Biological Sciences	SEDS, SMG, SSH, SoM	
193	CHEM 320	Instrumental Analysis	3	6	CHEM 220 Quantitative Chemical Analysis (555) (C and above)			Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	
194	CHEM 320L	Instrumental Analysis Lab	1	2	(CHEM 220 Quantitative Chemical Analysis (555) (C and above) AND CHEM 220L Quantitative Chemical Analysis Lab (5271) (C and above)) OR CHEM 220 Quantitative Chemical Analysis (555) (C and above)	CHEM 320 Instrumental Analysis (1055) (C and above)		Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	
195	CHEM 332	Physical Chemistry II	3	6	CHEM 331 Physical Chemistry I (634) (C and above)	MATH 274 Introduction to Differential Equations (484) (C and above)		Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	
196	CHEM 332L	Physical Chemistry II Lab	1	2		CHEM 332 Physical Chemistry II (1056) (C and above) AND CHEM 331L Physical Chemistry Lab (1060) (C and above)		Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	
197	CHEM 350	Descriptive Inorganic Chemistry	3	6	CHEM 101 General Chemistry I (113) (C and above)			Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	
198	CHEM 380	Research Methods	3	6				Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	

199	CHEM 411	Advanced Organic Chemistry I	3	6	CHEM 212 Organic Chemistry II (443) (C and above) AND MATH 161 Calculus I (118) (C and above)			Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	
200	CHEM 442	Biochemistry II with Lab-Metabolic Biochemistry	3	6	CHEM 341 Biochemistry I (1058) (C and above) AND CHEM 212 Organic Chemistry II (443) (C and above)			Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	
201	CHEM 451	Applied Homogenous Catalysis	3	6	CHEM 350 Advanced Inorganic Chemistry (1905) (C and above)			Chemistry	Biological Sciences	SEDS, SMG, SSH, SoM	
202	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	Biological Sciences	SEDS, SMG, SSH, SoM	
203	CHEM 511	Theoretical Chemistry	3	6	CHEM 510 Principles of Physical Chemistry (5266) (C and above)			Chemistry	Biological Sciences	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
204	CHEM 540	Organic Reactions and Mechanisms	3	6				Chemistry	Biological Sciences	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM	
Communication and Composition											
205	COMM 202	Introduction to Public Speaking	3	6	WCS 150/ASC 100 Advanced English for Academic Purposes (2183) (C- and above)			2 year UG SSH Biological Sciences, 2 year UG SSH Chemistry, 2 year UG SSH Mathematics, 2 year UG SSH Physics	2 year UG SEDS	2 year UG SSH	
206	COMM 325	Computer-Mediated Communication	3	6				SSH	SEDS, SMG, SoM		
207	SHSS 230	Say What you Mean: Clarity, Precision, and Style in Academic Writing	3	6	WCS 150/ASC 100 Advanced English for Academic Purposes (2183) (C- and above)			2 year UG SSH Biological Sciences, 2 year UG SSH Chemistry, 2 year UG SSH Mathematics, 2 year UG SSH Physics	2 year UG SEDS	2 year UG SSH	
208	SHSS 240	Writing for Digital Media	3	6	WCS 150/ASC 100 Advanced English for Academic Purposes (2183) (C- and above)			2 year UG SEDS	2 year UG SSH	3 year UG SEDS, 3 year UG SSH, 4 year UG SEDS, 4 year UG SSH	
209	SHSS 250	Advanced Rhetoric and Composition	3	6	WCS 150/ASC 100 Advanced English for Academic Purposes (2183) (C- and above)			2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH		3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	

210	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))			Instructor's permission required			
211	SHSS 391	Writing Fellows II – Practicum in Composition & Collaboration	3	6	WCS 390 Writing Fellows I – Composition and Collaboration in Theory and Practice (1969) (B and above)			Instructor's permission required			
Communication and Composition, Languages, Literature and Linguistics											
212	WLL 235/SHSS 260	Creative Writing: Introduction to Fiction Writing I	3	6	WCS 150/ASC 100 Advanced English for Academic Purposes (2183) (C- and above)			2 year UG SSH		3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	
213	WLL 360/SHSS 360	Poetry Writing Seminar	3	6				Instructor's permission required			
History, Philosophy and Religious Studies											
214	HST 100	History of Kazakhstan	3	6				4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SEDS, 1 year UG SMG, 1 year UG SOM, 1 year UG SSH	SEDS, SMG, SSH, SoM	
215	HST 123	Introduction to the History of Science and Technology	3	6				SSH	SEDS, SMG, SoM		
216	HST 132	European History II (from 1700)	3	6				SSH	SEDS, SMG, SoM		
217	HST 152	US History II (from 1877)	3	6				SSH	SEDS, SMG, SoM		
218	HST 214	An Introduction to Comparative History: The Eurasian Steppes and Great Plains of North America	3	6				SSH	SEDS, SMG, SoM		
219	HST 238	Clash of Civilizations: Communities, Confessions and Empires in Central Europe, 1000-1890	3	6				SSH	SEDS, SMG, SoM		
220	HST 241	History of Sexuality	3	6				SSH	SEDS, SMG, SoM		

221	HST 242	History of the Soviet Union: Politics, Society, Culture	3	6				SSH	SEDS, SMG, SoM		
222	HST 315	The Wild East: Colonialism,Rebellion, and Nation-building in the Steppe (1731 -1917)	3	6				SSH	SEDS, SMG, SoM		
223	HST 424	Global Histories	3	6	Subject "HST" BETWEEN 100 and 199 OR Subject "HST" BETWEEN 200 and 299 OR Subject "HST" BETWEEN 300 and 399 OR Subject "HST" BETWEEN 400 and 499				3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH		
224	HST 499	History Capstone: Undergraduate Dissertation	4	8	HST 498 Directed Reading (1365) (C- and above)			History	SSH		
225	HST 524	Global Histories	4	8				SSH	GSB, GSE, GSPP, SEDS, SMG, SoM		
226	PHIL 124	Knowledge and Reality	3	6				SEDS, SMG, SSH, SoM			
227	PHIL 131	Introduction to Contemporary Political Philosophy	3	6				SEDS, SMG, SSH, SoM			
228	PHIL 141	Critical Thinking	3	6				SEDS, SMG, SSH, SoM			
229	PHIL 180	Environmental Philosophy	3	6				SEDS, SMG, SSH, SoM			
230	PHIL 210	Ethics	3	6				2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH			
231	PHIL 223	Philosophy of Science	3	6				SEDS, SMG, SSH, SoM			
232	PHIL 240	Formal Logic	3	6				SEDS, SMG, SSH, SoM			
233	PHIL 242	Philosophy of Cognitive Science	3	6				SEDS, SMG, SSH, SoM			
234	PHIL 361	Philosophy of Language	3	6				SEDS, SMG, SSH, SoM			
235	PHIL 362	Philosophy of Mind	3	6				SEDS, SMG, SSH, SoM			
History, Philosophy and Religious Studies, History, Philosophy and Religious Studies											
236	HST 110/REL 110	Introduction to World Religions	3	6				SSH	SEDS, SMG, SoM		
237	HST 263/REL 263	The History of Islam II: Islam in the Modern World	3	6				SSH	SEDS, SMG, SoM		
238	HST 350/REL 350	Religion and Power in Islamic Central Asia	3	6	HST 100 History of Kazakhstan (172) (C- and above)			SSH	SEDS, SMG, SoM		
239	REL 265/PHIL 265	Becoming a Sage: Introduction to Daoism	3	6				SEDS, SMG, SSH, SoM			

History, Philosophy and Religious Studies, Kazakh Language and Turkic Studies											
240	HST 552/TUR 552	Proseminar in Eurasian History, 552-1917	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
History, Philosophy and Religious Studies, Kazakh Language and Turkic Studies, Sociology and Anthropology, Sociology and Anthropology											
241	TUR 375	Topics in Turkic Studies	3	6				SEDS, SMG, SSH, SoM			
History, Philosophy and Religious Studies, Languages, Literature and Linguistics											
242	WLL 102 /PHIL 102	Language, Experience, Culture	3	6				World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
History, Philosophy and Religious Studies, Languages, Literature and Linguistics, Political Science and International Relations											
243	HST 342/PLS 322/WLL 342	Russian Intellectual History (1762 - 1905)	3	6	Subject "HST" BETWEEN 100 and 199 OR Subject "WLL" BETWEEN 100 and 199 OR Subject "PLS" BETWEEN 100 and 199 OR Subject "REL" BETWEEN 100 and 199			SSH	SEDS, SMG, SoM		
Kazakh Language and Turkic Studies											
244	KAZ 201	Academic Kazakh I	3	6	KAZ 150 Basic Kazakh (1215) (C- and above) OR KLL "[B1.2] Intermediate"			1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	

245	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 SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	
246	KAZ 226	Kazakh for Medical School	3	6	KLL "[B1.2] Intermediate"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	

247	KAZ 313	Kazakh for Business	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	
248	KAZ 351	Kazakh Short Stories	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	

249	KAZ 357	Literature of Alash	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	
250	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 SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	

251	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 SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	
252	KAZ 365	Abai’s World	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	

253	KAZ 366	Kazakh Language for Engineers	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	
254	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 SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	

255	KAZ 371	Contemporary Kazakh Literature	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	
256	KAZ 372	Language and ethnicity	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	

257	KAZ 373	Kazakh Terminology	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	
258	KAZ 374	Kazakh Diplomacy	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	

259	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 SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	
260	KAZ 376	Language and Culture	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			1 year UG SEDS, 1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering, 1 year UG SEDS Undeclared, 1 year UG SOM	3 year UG SEDS, 3 year UG SMG, 3 year UG SSH, 4 year UG SEDS, 4 year UG SMG, 4 year UG SSH	1 year UG SMG, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH	
261	TUR 230	Literatures of Central Asia	3	6				SEDS, SMG, SSH, SoM			
262	TUR 305	Introduction to Chagatay and Ottoman Turkish	3	6	KAZ 202 Academic Kazakh II (4562) (C- and above) OR KLL "[C1.1] Advanced"			SEDS, SMG, SSH, SoM			
263	TUR 412	Advanced Turkish in Media and Politics	3	6				SEDS, SMG, SSH, SoM			
264	TUR 451	The Turkish Novel	3	6				SEDS, SMG, SSH, SoM			

265	TUR 575	Advanced Topics in Turkic Studies	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
266	TUR 775	Doctoral Topic in Turkic Studies	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
Languages, Literature and Linguistics											
267	CHN 101	Beginning Mandarin I	4	8				2 year UG SSH World Languages, Literatures and Cultures, 3 year UG SSH World Languages, Literatures and Cultures	Undeclared SSH	1 year UG SSH, 2 year UG SSH, 3 year UG SSH	
268	CHN 102	Beginning Mandarin II	4	8	CHN 101 Beginning Mandarin I (1384) (C and above)			World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
269	CHN 201	Intermediate Mandarin I	4	8	CHN 102 Beginning Mandarin II (1844) (C and above)			2 year UG SSH World Languages, Literatures and Cultures	SSH	SEDS, SMG, SoM	
270	FRE 101	Beginning French I	4	8				2 year UG SSH World Languages, Literatures and Cultures, 3 year UG SSH World Languages, Literatures and Cultures	Undeclared SSH	1 year UG SSH, 2 year UG SSH, 3 year UG SSH	
271	FRE 202	Intermediate French II	4	8	FRE 201 Intermediate French I (667) (C- and above)			World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
272	FRE 221	Introduction to French and Francophone Studies	3	6	FRE 102 Beginning French II (454) (C- and above)			SSH	SEDS, SMG, SoM		
273	KOR 101	Beginning Korean I	4	8				SEDS, SMG, SSH, SoM			
274	KOR 102	Beginning Korean II	4	8	KOR 101 Beginning Korean I (4672) (C- and above)			2 year UG SSH World Languages, Literatures and Cultures, 3 year UG SSH World Languages, Literatures and Cultures	Undeclared SSH	1 year UG SSH, 2 year UG SSH, 3 year UG SSH	
275	KOR 202	Intermediate Korean II	4	8	KOR 201 Intermediate Korean I (5059) (C- and above)			World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
276	LING 130	Introduction to Language and Communication	3	6				1 year UG SSH	2 year UG SSH	SEDS, SMG, SSH, SoM	
277	LING 131	Introduction to Linguistics	3	6				1 year UG SSH	2 year UG SSH	SEDS, SMG, SSH, SoM	
278	LING 273	Survey of Research Methods in Linguistics	3	6	LING 131 Introduction to Linguistics (1394) (C- and above)			World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
279	LING 277	Language Diversity and Language Universals	3	6	LING 131 Introduction to Linguistics (1394) (C and above)			World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
280	LING 278	Sounds of the World’s Languages	3	6				World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	

281	LING 372	Discourse Analysis	3	6	Subject "LLL" BETWEEN 100 and 199 OR Subject "WLL" BETWEEN 100 and 199 OR WLL 171/ANT 175 Introduction to Linguistic Anthropology (4417) (C- and above) OR Subject "LING" BETWEEN 100 and 199 OR Subject "LING" BETWEEN 100 and 199			2 year UG SSH World Languages, Literatures and Cultures	SSH	SEDS, SMG, SoM	
282	LING 374	Language Contact in Central Asia	3	6	LING 131 Introduction to Linguistics (1394) (C- and above)			4 year UG SSH World Languages, Literatures and Cultures	SSH	SEDS, SMG, SoM	
283	PER 202	Intermediate Persian II	4	8	PER 201 Intermediate Persian 1 (4987) (C- and above)			World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
284	RFL 404	Intensive Advanced and Superior Composition and Conversation Russian II	4	8				Instructor's Permission Required			
285	SPA 102	Beginning Spanish II	4	8	SPA 101 Beginning Spanish I (685) (C- and above)			2 year UG SSH World Languages, Literatures and Cultures, 3 year UG SSH World Languages, Literatures and Cultures	Undeclared SSH	SEDS, SMG, SSH, SoM	
286	SPA 202	Intermediate Spanish II	4	8	SPA 201 Intermediate Spanish I (1475) (C- and above)			World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
287	SPA 320	The Hispanic Short Story	3	6	Subject "WLL" BETWEEN 100 and 199 AND SPA 202 Intermediate Spanish II (1842) (C- and above)			World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
288	WLL 110	Introduction to Literary Studies	3	6				1 year UG SSH	SSH	SEDS, SMG, SoM	
289	WLL 211	World Literature II: from the 18th to the 20th century	3	6				World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
290	WLL 248	Survey of Soviet Literature and Culture	3	6				World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
291	WLL 250	From Page to Screen	3	6				World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	
292	WLL 399	Independent Study	3	6				Instructor's Permission Required			
293	WLL 401	Advanced Topics in World Literature	3	6				World Languages, Literature and Culture	SSH	SEDS, SMG, SoM	

294	WLL 499	Languages, Linguistics, and Literatures Capstone II	3	6	WLL 498 Languages, Linguistics, and Literatures Capstone I (3048) (C- and above)			4 year UG SSH World Languages, Literatures and Cultures			
295	WLL 501	Advanced Topics in World Literature	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
Physics											
296	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 SEDS, 1 year UG SMG, 1 year UG SOM, 1 year UG SSH	SSH	SEDS, SMG, SoM	
297	PHYS 162	Physics II for Scientists and Engineers with Laboratory	4	8	PHYS 161 Physics I for Scientists and Engineers with Laboratory (116) (C- and above) OR PHYS 151 Introductory Physics I with Lab (649) (C- and above)		PHYS 172 Physics II for Physics Majors with Laboratory (1402) (C- and above)	1 year UG SEDS, 1 year UG SMG, 1 year UG SOM, SSH	SEDS, SMG, SoM		
298	PHYS 202	Introductory Astrophysics	3	6	PHYS 162 Physics II for Scientists and Engineers with Laboratory (173) (C- and above)			SSH	SEDS, SMG, SoM		
299	PHYS 222	Classical Mechanics II	3	6	PHYS 221 Classical Mechanics I (652) (C- and above)	MATH 274 Introduction to Differential Equations (484) (D and above)		Physics	SSH	SEDS, SMG, SoM	
300	PHYS 270	Computational Physics with Laboratory	3	6	(CSCI 150 Fundamentals of Programming (1501) (C- and above) OR CSCI 151 Programming for Scientists and Engineers (192) (C- and above) OR CSCI 115 Programming Fundamentals (5257) (C- and above)) AND MATH 162 Calculus II (170) (C- and above)	MATH 273 Linear Algebra with Applications (84) (D and above)		Physics	SSH	SEDS, SMG, SoM	

301	PHYS 280	Thermodynamics and Statistical Physics	3	6	MATH 263 Calculus III (81) (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))			Physics	SSH	SEDS, SMG, SoM	
302	PHYS 362	Classical Electrodynamics II	3	6	PHYS 361 Classical Electrodynamics I (651) (C- and above)			Physics	SSH	SEDS, SMG, SoM	
303	PHYS 370	Optics with Laboratory	4	8	PHYS 361 Classical Electrodynamics I (651) (C- and above)			Physics	SSH	SEDS, SMG, SoM	
304	PHYS 395	Research Methods	3	6				2 year UG SSH Physics, 3 year UG SSH Physics, 4 year UG SSH Physics			
305	PHYS 451	Quantum Mechanics I	3	6	PHYS 221 Classical Mechanics I (652) (C- and above) AND PHYS 361 Classical Electrodynamics I (651) (C- and above)			Physics	SSH	SEDS, SMG, SoM	
306	PHYS 463	Astrophysics and General Relativity	3	6	MATH 162 Calculus II (170) (C- and above) AND PHYS 221 Classical Mechanics I (652) (C- and above) AND MATH 274 Introduction to Differential Equations (484) (C- and above)			Physics	SSH	SEDS, SMG, SoM	
307	PHYS 474	Lasers and Photonics	3	6	PHYS 370 Optics with Laboratory (1405) (C- and above)			Physics	SSH	SEDS, SMG, SoM	
308	PHYS 483	Statistical Mechanics	3	6	PHYS 280 Thermodynamics and Statistical Physics (1179) (C- and above)			Physics	SSH	SEDS, SMG, SoM	
309	PHYS 491	Directed Study of Advanced Physics Topics	3	6				3 year UG SSH Physics, 4 year UG SSH Physics			
310	PHYS 499	Graduation Project	3	6				Instructor's Permission Required			
311	PHYS 510	Quantum Mechanics	3	6				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		

312	PHYS 520	Statistical Physics	3	6				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
313	PHYS 574	Lasers and Photonics	3	6				Physics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
314	PHYS 700-0	Thesis Research	0	0				Science, Engineering and Technology			
315	PHYS 701	Current Research Literature	3	6				Science, Engineering and Technology	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
316	PHYS 710	Quantum Mechanics	4	8				Science, Engineering and Technology	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
317	PHYS 720	Statistical Physics	4	8				Science, Engineering and Technology	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
318	PHYS 774	Lasers and Photonics	4	8				Science, Engineering and Technology	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
319	SST 501	Teaching and Learning	3	6				SSH			
Political Science and International Relations											
320	PLS 101	Introduction to Political Science	3	6				SEDS, SMG	Biological Sciences, Chemistry, Mathematics, Physics	SSH	
321	PLS 120	Introduction to Political Theory	3	6				Undeclared SSH	Political Science and International Relations	SEDS, SMG, SSH, SoM	
322	PLS 140	Introduction to Comparative Politics	3	6				Undeclared SSH	Political Science and International Relations	SEDS, SMG, SSH, SoM	
323	PLS 150	Introduction to International Relations	3	6				Undeclared SSH	Political Science and International Relations	SEDS, SMG, SSH, SoM	
324	PLS 210	Political Science Research Methods	3	6				2 year UG SSH Political Sciences and International Relations	Political Science and International Relations	SSH	
325	PLS 211	Quantitative Methods	3	6			ECON 211 Economic Statistics (2280) (C- and above)	2 year UG SSH Political Sciences and International Relations	Political Science and International Relations	SSH	

326	PLS 331	Nationalism and Multi-Ethnic Governance	3	6	PLS 210 Political Science Research Methods (129) (C- and above) AND PLS 140 Introduction to Comparative Politics (223) (C- and above)			Political Science and International Relations	SSH	SEDS, SMG, SoM	
327	PLS 338	U.S. Government and Politics	3	6	(PLS 140 Introduction to Comparative Politics (223) (C- and above) OR PLS 101 Introduction to Political Science (513) (C- and above)) AND PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SSH	SEDS, SMG, SoM	
328	PLS 354	Introduction to International Law	3	6	PLS 150 Introduction to International Relations (511) (C- and above) AND PLS 140 Introduction to Comparative Politics (223) (C- and above) AND PLS 120 Introduction to Political Theory (512) (C- and above) AND PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SSH	SEDS, SMG, SoM	
329	PLS 355	European Union: Institutions and Policies	3	6	PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SSH	SEDS, SMG, SoM	
330	PLS 356	International Politics of the Korean Peninsula	3	6	PLS 210 Political Science Research Methods (129) (C- and above) AND PLS 150 Introduction to International Relations (511) (C- and above)			Political Science and International Relations	SSH	SEDS, SMG, SoM	
331	PLS 360	Foreign Policy Analysis	3	6	PLS 150 Introduction to International Relations (511) (C- and above)			Political Science and International Relations	SSH	SEDS, SMG, SoM	
332	PLS 365	Civil-Military Relations	3	6	PLS 211 Quantitative Methods (221) (C- and above) AND PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SSH	SEDS, SMG, SoM	

333	PLS 372	Post-Soviet Public Policy	3	6				Political Science and International Relations	SSH	SEDS, SMG, SoM	
334	PLS 392	Politics of China	3	6	PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SSH	SEDS, SMG, SoM	
335	PLS 422	Just War Theory	3	6	PLS 120 Introduction to Political Theory (512) (C- and above) AND PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SSH	SEDS, SMG, SoM	
336	PLS 426	Hannah Arendt on Power, Violence, and Revolution	3	6	PLS 120 Introduction to Political Theory (512) (C- and above) AND PLS 210 Political Science Research Methods (129) (C- and above)			Political Science and International Relations	SSH	SEDS, SMG, SoM	
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	SSH	SEDS, SMG, SoM	
338	PLS 445	Political Violence	3	6	(PLS 140 Introduction to Comparative Politics (223) (C- and above) OR 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	SSH	SEDS, SMG, SoM	
339	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)			Political Science and International Relations	SSH	SEDS, SMG, SoM	
340	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)			Instructor's Permission Required			

341	PLS 510	Advanced Research II	4	8				Political Science and International Relations	Eurasian Studies		
342	PLS 522	Just War Theory	4	8				Political Science and International Relations	Eurasian Studies		
343	PLS 526	Hannah Arendt on Power, Violence, and Revolution	4	8			PLS 426 Hannah Arendt on Power, Violence, and Revolution (5398) (C- and above)	Political Science and International Relations	Eurasian Studies		
344	PLS 541	Advanced Topics in Comparative Politics	4	8				Political Science and International Relations	Eurasian Studies		
345	PLS 545	Political Violence	4	8				Political Science and International Relations	Eurasian Studies		
346	PLS 569	International Relations of Eurasia	4	8				Political Science and International Relations	Eurasian Studies		
347	PLS 596	Thesis Preparation	2	4	Subject "PLS" BETWEEN 500 and 599			Political Science and International Relations			
348	PLS 599	MA Thesis II	10	20				Political Science and International Relations			
SSH											
349	SSH 300	School of Sciences and Humanities Internship	3	6				Instructor's Permission Required			
350	SSH 301	School of Sciences and Humanities Internship: Second Experience	3	6				Instructor's Permission Required			
351	SSH 398	Independent Study	1	2				Instructor's Permission Required			
Sociology and Anthropology											
352	ANT 110	Introduction to Sociocultural Anthropology	3	6				1 year UG SEDS, 1 year UG SMG, 1 year UG SOM, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH, Anthropology, Sociology	SSH	SEDS, SMG, SoM	
353	ANT 160	Introduction to Biological Anthropology	3	6			ANT 361 Human Evolution: Bones, Stones and Genomes (160) (C- and above)	1 year UG SEDS, 1 year UG SMG, 1 year UG SOM, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH, Anthropology, Sociology	SSH	SEDS, SMG, SoM	

354	ANT 181	Introduction to Medical Anthropology	3	6				1 year UG SEDS, 1 year UG SMG, 1 year UG SOM, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH, Anthropology, Sociology	SSH	SEDS, SMG, SoM	
355	ANT 232	Life, Death and Economy: Archaeology of Central Asia	3	6				1 year UG SEDS, 1 year UG SMG, 1 year UG SOM, 1 year UG SSH, 2 year UG SEDS, 2 year UG SMG, 2 year UG SOM, 2 year UG SSH, Anthropology	SSH	SEDS, SMG, SoM	
356	ANT 314	Politics of Identity in Eurasia	3	6	Subject "HST" BETWEEN 100 and 499 OR Subject "SOC" BETWEEN 100 and 499 OR Subject "ANT" BETWEEN 100 and 499 OR Subject "PLS" BETWEEN 100 and 499 OR Subject "SOC" BETWEEN 100 and 499 OR Subject "ANT" BETWEEN 100 and 499			Anthropology, Sociology	SSH	SEDS, SMG, SoM	
357	ANT 331	Archaeology of Power and Inequality	3	6				Anthropology, Sociology	SSH	SEDS, SMG, SoM	
358	ANT 399	Special Topics in Anthropology	3	6				Instructor's Permission Required			
359	ANT 400	Research Assistance in Anthropology	1	2				Instructor's permission required			
360	ANT 410	Ethnography, Fiction, Memoir	3	6				Anthropology, Sociology	SSH	SEDS, SMG, SoM	
361	ANT 499	Capstone Seminar II	3	6	ANT 498 Capstone Seminar I (2965) (C- and above)			4 year UG SSH Anthropology			
362	ANT 510	Ethnography, Fiction, Memoir	4	8				Eurasian Studies, SSH	GSB, GSE, GSPP, SEDS, SMG, SoM		
363	ANT 710	Ethnography, Fiction, Memoir	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
364	SOC 101	Introduction to Sociology	3	6				1 year UG SOM, Anthropology, Sociology, Undeclared SSH	2 year UG SSH, 3 year UG SSH Biological Sciences	SEDS, SMG, SSH, SoM	
365	SOC 203	Quantitative Methods in Sociology	3	6				Anthropology, Sociology	SSH	SEDS, SMG, SoM	
366	SOC 213	Work and Society	3	6				Anthropology, Sociology	SSH	SEDS, SMG, SoM	
367	SOC 215	Sociology of Race and Ethnicity	3	6				Anthropology, Sociology	SSH	SEDS, SMG, SoM	

368	SOC 223	Social Movements: How People Make Change	3	6				Anthropology, Sociology	SSH	SEDS, SMG, SoM	
369	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	SSH	SEDS, SMG, SoM	
370	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	SSH	SEDS, SMG, SoM	
371	SOC 400	Research Assistance in Sociology	1	2				Instructor's permission required			
372	SOC 403	Research Assistance in Sociology	2	4				Instructor's permission required			
373	SOC 498	Capstone Seminar Part I	3	6				Instructor's Permission Required			
374	SOC 499	Capstone Seminar II	3	6	SOC 498 Capstone Seminar Part I (3043) (C- and above)			4 year UG SEDS, 4 year UG SMG, 4 year UG SSH, Sociology	SSH	SEDS, SMG, SoM	
Sociology and Anthropology, Sociology and Anthropology											
375	ANT 214/SOC 214	Qualitative Methods	3	6				Anthropology, Sociology	SSH	SEDS, SMG, SoM	
376	ANT 285/SOC 212	Food and Society	3	6				Anthropology, Sociology	SSH	SEDS, SMG, SoM	
SEDS											
Computer Science											
377	SST 502	Teaching Practicum	3	6				Applied Mathematics, Computer Science, Physics, Robotics	SEDS		
378	SST 504	Innovation & Entrepreneurship	3	6				Applied Mathematics, Biological Sciences, Chemistry, Computer Science, Economics, Eurasian Studies, Physics, Political Science and International Relations, Robotics	SEDS		
SoE											
Chemical and Materials Engineering											

379	CHME 202	Fluid Mechanics	3	6				2 year UG SEDS Chemical Engineering, 2 year UG SEDS Chemical and Materials Engineering	SEDS		
380	CHME 203	Organic and Polymer Chemistry	3	6	CHME 222 Inorganic and Analytical Chemistry (5039) (D and above)			2 year UG SEDS Chemical Engineering, 2 year UG SEDS Chemical and Materials Engineering	SEDS		
381	CHME 454	Transport Phenomena and Operations	3	6				4 year UG SEDS Chemical Engineering, 4 year UG SEDS Chemical and Materials Engineering	SEDS		
382	DCHME 700-0	Thesis Research	0	0				Science, Engineering and Technology			
383	DCHME 701	Current Research Literature	4	8				Science, Engineering and Technology			
384	DCHME 715	Air Quality, Toxicity and Health	4	8				Science, Engineering and Technology			
385	DCHME 751	Advanced Safety, Reliability and Risk Engineering in Process Industries	4	8				Science, Engineering and Technology			
386	DCHME 752	Polymer Melt Fluid Mechanics and Processing	4	8				Science, Engineering and Technology			
387	DCHME 763	Advanced Heat and Mass Transfer	4	8				Science, Engineering and Technology			
388	ECHE 323	Computational methods in Chemical Engineering-I	3	6	ECHE 333 Separation Processes-I (1271) (D and above)	ECHE 481 Chemical Reaction Engineering (1985) (D and above)		Registration by School Admin only			
389	ECHE 383	Separation Processes II	3	6	ECHE 126 Introduction to Chemical Engineering (33) (D and above) AND ECHE 225 Heat and Mass Transfer Operations (541) (D and above)			Registration by School Admin only			
390	ECHE 386	Chemical Plant Design and Optimization	3	6				Registration by School Admin only			
391	ECHE 387	Chemical Reaction Engineering 2	3	6				Registration by School Admin only			
392	ECHE 388	Process Dynamics and Control	3	6				Registration by School Admin only			
393	ECHE 420	Polymer Processing and Rheology	3	6				4 year UG SEDS Chemical Engineering, 4 year UG SEDS Chemical and Materials Engineering	SEDS		

394	ECHE 421	Tissue Engineering	3	6				4 year UG SEDS Chemical Engineering, 4 year UG SEDS Chemical and Materials Engineering	SEDS	SMG, SSH, SoM	
395	ECHE 479	Capstone Project II	9	18	ECHE 418 Capstone project 1 (1278) (D and above)			Registration by School Admin only			
396	ECHE 485	Introduction to Biochemical Engineering	3	6				4 year UG SEDS Chemical Engineering, 4 year UG SEDS Chemical and Materials Engineering	SEDS		
397	MBME 600	Research Seminar	3	6				Biomedical Engineering	SEDS		
398	MBME 607	Advanced Tissue Engineering	3	6				Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering	SEDS	GSB, GSE, GSPP, SMG, SSH, SoM	
399	MBME 700	Strategies for Controlled Topical Delivery of Drugs	3	6				Biomedical Engineering	SEDS		
400	MBME 705	Infectious Diseases and Antimicrobial Strategies	3	6				Biomedical Engineering	SEDS		
401	MBME 708	Biomedical Imaging	3	6				Biomedical Engineering	SEDS		
402	MCHME 600	Research Seminar	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
403	MCHME 602	MSc Thesis II	12	24				Chemical Engineering, Chemical and Materials Engineering	SEDS		
404	MCHME 606	Advanced Heat and Mass Transfer	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
405	MCHME 701	Advanced Chemical Thermodynamics	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
406	MCHME 704	Advanced Safety, Reliability and Risk Engineering in Process Industries	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
407	MCHME 707	Polymer Melt Fluid Mechanics and Processing	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
408	MCHME 709	Food Engineering and Processing	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
409	MCHME 715	Air Quality, Toxicity and Health	3	6				Chemical Engineering, Chemical and Materials Engineering	SEDS		
Civil Engineering											

410	MSC 600	Research Methods and Ethics	3	6				SEDS			
Civil and Environmental Engineering											
411	CEE 202	Environmental Engineering	3	6	CEE 201 Environmental Chemistry (4999) (D and above)			2 year UG SEDS Civil Engineering, 2 year UG SEDS Civil and Environmental Engineering	SEDS		
412	CEE 203	Structural Analysis	3	6	MAE 200 Structural Mechanics I (5010) (D and above) OR CEE 200 Structural Mechanics I (5005) (D and above)			2 year UG SEDS Civil Engineering, 2 year UG SEDS Civil and Environmental Engineering	SEDS		
413	DCEE 700-0	Thesis Research	0	0				Science, Engineering and Technology			
414	DCEE 701	Current Research Literature	4	8				Science, Engineering and Technology			
415	DCEE 759	Geotechnical Earthquake Engineering	4	8				Science, Engineering and Technology			
416	DCEE 762	Advanced Project Management	4	8				Science, Engineering and Technology			
417	DCEE 766	Advanced Pavement Design, Analysis, and Rehabilitation	4	8				Science, Engineering and Technology			
418	DCEE 767	Advanced Concrete Design	4	8				Science, Engineering and Technology			
419	DCEE 769	Sustainable Development	4	8				Science, Engineering and Technology			
420	ECE 306	Geotechnical Design	3	6	ECE 210 Soil Mechanics (862) (D and above)			Registration by School Admin only			
421	ECE 319	Structural Design – Steel	3	6				Registration by School Admin only			
422	ECE 320	Engineering Hydrology	3	6				Registration by School Admin only			
423	ECE 420	Modern Information Technology in Construction	3	6				3 year UG SEDS Civil Engineering, 3 year UG SEDS Civil and Environmental Engineering, 4 year UG SEDS Civil Engineering, 4 year UG SEDS Civil and Environmental Engineering	SEDS		

424	ECE 422	Prestressed Concrete Design	3	6				3 year UG SEDS Civil Engineering, 3 year UG SEDS Civil and Environmental Engineering, 4 year UG SEDS Civil Engineering, 4 year UG SEDS Civil and Environmental Engineering	SEDS		
425	ECE 427	Individual Research Projects in Civil Engineering (II)	3	6	CEE 463 Individual Research Project in Civil & Environmental Engineering 1 (6594) (C and above)			3 year UG SEDS Civil Engineering, 3 year UG SEDS Civil and Environmental Engineering, 4 year UG SEDS Civil Engineering, 4 year UG SEDS Civil and Environmental Engineering	SEDS		
426	ECE 428	Introduction to Finite Element Methods	3	6				3 year UG SEDS Civil Engineering, 3 year UG SEDS Civil and Environmental Engineering, 4 year UG SEDS Civil Engineering, 4 year UG SEDS Civil and Environmental Engineering	SEDS		
427	ECE 472	Water and Wastewater Treatment Processes	3	6	ECE 218 Environmental Chemistry (3296) (D and above)			Registration by School Admin only			
428	ECE 473	Environmental Systems	3	6				3 year UG SEDS Civil Engineering, 3 year UG SEDS Civil and Environmental Engineering, 4 year UG SEDS Civil Engineering, 4 year UG SEDS Civil and Environmental Engineering	SEDS		
429	ECE 478	Capstone Project II	9	18	ECE 401 Capstone Project 1 (1270) (D and above)			Registration by School Admin only			
430	EMEM 510	Managerial Accounting	2	4				1 year Gr SEDS Engineering Management			
431	EMEM 511	Business Strategy	2	4				1 year Gr SEDS Engineering Management			
432	EMEM 513	Entrepreneurship	2	4				1 year Gr SEDS Engineering Management			
433	EMEM 514	Finance	2	4				1 year Gr SEDS Engineering Management			

434	EMEM 516	Management of Organizations	2	4				1 year Gr SEDS Engineering Management			
435	EMEM 517	Marketing	2	4				1 year Gr SEDS Engineering Management			
436	EMEM 527	Globalization and Engineering	3	6				Engineering Management			
437	EMEM 529	Capstone Project	8	16				Engineering Management			
438	EMEM 535	Managing Product and Service Development	3	6				Engineering Management			
439	EMEM 545	Business Communication	2	4				1 year Gr SEDS Engineering Management			
440	EMEM 548	Understanding and Predicting Consumer Behavior	2	4							
441	MCEE 600	Research Seminar	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
442	MCEE 602	MSc Thesis II	12	24				Civil Engineering, Civil and Environmental Engineering	SEDS		
443	MCEE 606	Advanced Project Management	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
444	MCEE 707	Geotechnical Earthquake Engineering	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
445	MCEE 712	Advanced Pavement Design, Analysis, and Rehabilitation	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
446	MCEE 713	Advanced Concrete Design	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
447	MCEE 714	Advanced Wastewater Treatment	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
448	MCEE 715	Sustainable Development	3	6				Civil Engineering, Civil and Environmental Engineering	SEDS		
Electrical and Computer Engineering											
449	DELCE 700-0	Thesis Research	0	0				Science, Engineering and Technology			
450	DELCE 701	Current Research Literature	4	8				Science, Engineering and Technology			
451	DELCE 755	Advanced Electromagnetics	4	8				Science, Engineering and Technology			

452	DELCE 759	Advanced Pattern Recognition and Machine Learning	4	8				Science, Engineering and Technology			
453	DELCE 760	Advanced System Modelling and Control	4	8				Science, Engineering and Technology			
454	EEE 239	Communication systems	3	6				Registration by School Admin only			
455	EEE 343	Embedded Microcontrollers	3	6				Registration by School Admin only			
456	EEE 379	Power Systems Analysis	3	6				Registration by School Admin only			
457	EEE 381	Electrical Machines and Drives	3	6				Registration by School Admin only			
458	EEE 480	Capstone Project II	9	18				Registration by School Admin only			
459	EEE 484	Electric Power Generation	3	6				4 year UG SEDS Electrical and Computer Engineering, 4 year UG SEDS Electrical and Electronic Engineering	SEDS		
460	EEE 485	Power System Operation and Control	3	6	EEE 379 Power Systems Analysis (1956) (D and above) OR ELCE 355 Power Systems Protection (2652) (D and above)			4 year UG SEDS Electrical and Computer Engineering, 4 year UG SEDS Electrical and Electronic Engineering	SEDS		
461	EEE 486	Photonics for Engineering	3	6	EEE 342 Electromagnetics (533) (D and above)			4 year UG SEDS Electrical and Computer Engineering, 4 year UG SEDS Electrical and Electronic Engineering	SEDS		
462	EEE 488	Numerical Optimization Techniques and Computer Applications	3	6				4 year UG SEDS Electrical and Computer Engineering, 4 year UG SEDS Electrical and Electronic Engineering	SEDS		
463	EEE 489	Analog Circuit Design	3	6				Registration by School Admin only			
464	EEE 495	Fundamentals of Biomedical Engineering and Biophysics	3	6				4 year UG SEDS Electrical and Computer Engineering, 4 year UG SEDS Electrical and Electronic Engineering	SEDS		
465	ELCE 201	Circuit Theory	3	6	ELCE 200 Introduction to Electrical Circuits (4991) (C- and above)			2 year UG SEDS Electrical and Computer Engineering, 2 year UG SEDS Electrical and Electronic Engineering	SEDS		

466	ELCE 204	Solid State Devices	3	6	ENG 103 Engineering Materials II (4818) (C- and above)			2 year UG SEDS Electrical and Computer Engineering, 2 year UG SEDS Electrical and Electronic Engineering	SEDS		
467	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)	SEDS, SMG			
468	MECE 600	Research Seminar	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
469	MECE 602	Master Thesis II	12	24				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
470	MECE 700	Industrial and Commercial Power System	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
471	MECE 702	Advanced Power Electronics	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
472	MECE 717	Pattern Recognition and Machine Learning	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		

473	MECE 719	Advanced Electromagnetics	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
474	MECE 724	System Modelling and Control	3	6				Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS		
Geosciences											
475	GEOL 101	Fundamentals of Geology	3	6				1 year UG SMG, Undeclared SMG	SEDS, SMG, SSH, SoM		
476	GEOL 203	Sedimentary petrology	3	6	GEOL 101 Fundamentals of Geology (4774) (D and above) OR GEOL 202 Geologic Maps and Cross-Sections (5123) (D and above)	GEOL 202 Geologic Maps and Cross-Sections (5123) (D and above)		Geology	Mining Engineering, Petroleum Engineering	SEDS, SMG, SSH, SoM	
477	GEOL 204	Sedimentology and strartigraphy	3	6	GEOL 101 Fundamentals of Geology (4774) (D and above) OR GEOL 102 Fundamentals of Geology (4772) (D and above) AND GEOL 202 Geologic Maps and Cross-Sections (5123) (D and above)			Geology	Mining Engineering, Petroleum Engineering	SEDS, SMG, SSH, SoM	
478	GEOL 205	Paleontology	3	6	GEOL 101 Fundamentals of Geology (4774) (D and above) OR GEOL 102 Fundamentals of Geology (4772) (D and above)			Geology	Mining Engineering, Petroleum Engineering	SEDS, SMG, SSH, SoM	
Mechanical and Aerospace Engineering											
479	DMAE 700-0	Thesis Research	0	0				Science, Engineering and Technology			
480	DMAE 702	Current Research Literature	4	8				Science, Engineering and Technology			
481	DMAE 703	Numerical Techniques for Engineers	4	8				Science, Engineering and Technology			
482	DMAE 756	Design and Manufacturing with Environmental Concern	4	8				Science, Engineering and Technology			
483	DMAE 757	Design Optimization	4	8				Science, Engineering and Technology			

484	DMAE 769	Advanced Computational Fluid Dynamics and Heat Transfer in Mechanical Engineering	4	8				Science, Engineering and Technology			
485	EME 300	Research Project	3	6				Registration by School Admin only			
486	EME 352	Computational Fluid Dynamics	3	6				Registration by School Admin only			
487	EME 357	Fluid Mechanics II	3	6				Registration by School Admin only			
488	EME 377	Mechanical Systems Design	3	6	EME 361 Machine Design (1051) (D and above)			Registration by School Admin only			
489	EME 413	Computer Aided Geometric Design	3	6	EME 253 Computer Aided Engineering (1050) (C- and above)			Registration by School Admin only			
490	EME 414	Fire Engineering	3	6	BENG 226 Engineering Thermodynamics (1553) (D and above)			4 year UG SEDS Mechanical Engineering, 4 year UG SEDS Mechanical and Aerospace Engineering	SEDS		
491	EME 415	Flight Mechanics	3	6				4 year UG SEDS Mechanical Engineering, 4 year UG SEDS Mechanical and Aerospace Engineering	SEDS		
492	EME 476	Materials and Manufacturing II	3	6				Registration by School Admin only			
493	EME 477	Capstone Project II	9	18				Registration by School Admin only			
494	EME 489	Advanced Engineering Mathematics	3	6	BENG 228 Engineering Mathematics III (3154) (D and above)			4 year UG SEDS Mechanical Engineering, 4 year UG SEDS Mechanical and Aerospace Engineering	SEDS		
495	ENG 102	Engineering Materials I	3	6				1 year UG SEDS Civil Engineering, 1 year UG SEDS Civil and Environmental Engineering, 1 year UG SEDS Mechanical Engineering, 1 year UG SEDS Mechanical and Aerospace Engineering	Civil Engineering, Civil and Environmental Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS	

496	ENG 103	Engineering Materials II	3	6				1 year UG SEDS Chemical Engineering, 1 year UG SEDS Chemical and Materials Engineering, 1 year UG SEDS Electrical and Computer Engineering, 1 year UG SEDS Electrical and Electronic Engineering	Chemical Engineering, Chemical and Materials Engineering, Electrical and Computer Engineering, Electrical and Electronic Engineering	SEDS	
497	ENG 201	Applied Probability and Statistics	3	6	MATH 162 Calculus II (170) (C- and above)			2 year UG SEDS Chemical Engineering, 2 year UG SEDS Chemical and Materials Engineering, 2 year UG SEDS Electrical and Computer Engineering, 2 year UG SEDS Electrical and Electronic Engineering, 2 year UG SEDS Mechanical Engineering, 2 year UG SEDS Mechanical and Aerospace Engineering	2 year UG SEDS Civil Engineering, 2 year UG SEDS Civil and Environmental Engineering	SEDS	
498	ENG 202	Numerical Methods in Engineering	3	6	ENG 200 Engineering Mathematics III (Differential Equations and Linear Algebra) (5009) (D and above)			2 year UG SEDS Chemical Engineering, 2 year UG SEDS Chemical and Materials Engineering, 2 year UG SEDS Electrical and Computer Engineering, 2 year UG SEDS Electrical and Electronic Engineering, 2 year UG SEDS Mechanical Engineering, 2 year UG SEDS Mechanical and Aerospace Engineering	2 year UG SEDS Civil Engineering, 2 year UG SEDS Civil and Environmental Engineering	SEDS	
499	MAE 205	Material and Manufacturing I	3	6				2 year UG SEDS Mechanical Engineering, 2 year UG SEDS Mechanical and Aerospace Engineering	SEDS		
500	MAE 206	Engineering Dynamics I	3	6				2 year UG SEDS Mechanical Engineering, 2 year UG SEDS Mechanical and Aerospace Engineering	SEDS		
501	MMAE 600	Research Seminar	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
502	MMAE 602	Master Thesis II	12	24	MMAE 601 Master Thesis I (5014) (P)			Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		

503	MMAE 604	Advanced Computational Fluid Dynamics and Heat Transfer in Mechanical Engineering	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
504	MMAE 700	Advanced Statistics and Probability	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
505	MMAE 701	Numerical Techniques for Engineers	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
506	MMAE 703	Advanced Engineering Design and Manufacturing	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
507	MMAE 704	Design and Manufacturing with Environmental Concern	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
508	MMAE 705	Design Optimization	3	6				Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
509	MMAE 716	Digital Transformation Concepts	3	6				Engineering Management, Mechanical Engineering, Mechanical and Aerospace Engineering	SEDS		
Mining Engineering											
510	MINE 201	Mineral Processing	3	6	SMG 100 Introduction to Natural Resources Extraction (4773) (and above) AND MATH 162 Calculus II (170) (and above) AND CHEM 101 General Chemistry I (113) (C- and above) AND PHYS 162 Physics II for Scientists and Engineers with Laboratory (173) (C- and above)			Mining Engineering	Geology, Petroleum Engineering	SEDS, SMG, SSH, SoM	
511	MINE 507	Rock Excavation Methods	3	6				Mining Engineering			
512	MINE 508	Advanced Rock Mechanics	3	6				Mining Engineering			
513	MINE 509	Advanced Surface Mine Design	3	6				Mining Engineering			
514	MINE 510	Advanced Underground Mine Design	3	6				Mining Engineering			
515	MINE 691	Thesis II	15	30	MINE 690 Thesis I (4531) (P)			Mining Engineering			
516	MINE 702	Current Research Literature	4	8				Science, Engineering and Technology			

517	MINE 703	Advanced Mining Systems	4	8				Science, Engineering and Technology			
518	MINE 803	Advanced Geometallurgy	4	8				Science, Engineering and Technology			
519	MINE 806	Advanced Numerical Methods	4	8				Science, Engineering and Technology			
520	MINE 890-0	Thesis Research	0	0				Science, Engineering and Technology			
Petroleum Engineering											
521	PETE 202	Transport Phenomena	3	6	ENG 200 Engineering Mathematics III (Differential Equations and Linear Algebra) (5009) (C- and above)			Petroleum Engineering	SEDS, SMG, SSH, SoM		
522	PETE 205	Drilling Engineering with Laboratories	4	8	PETE 201 Fluid Mechanics and Thermodynamics (5120) (C- and above)			Petroleum Engineering	SEDS, SMG, SSH, SoM		
523	PETE 206	Reservoir Rock and Fluid Properties with Lab	4	8				Petroleum Engineering	SEDS, SMG, SSH, SoM		
524	PETE 506	Advanced Reservoir Simulation	3	6				Petroleum Engineering	SEDS		
525	PETE 507	Advanced Reservoir Engineering	3	6				Petroleum Engineering	SEDS		
526	PETE 508	Advanced Production Engineering	3	6				Petroleum Engineering	SEDS		
527	PETE 600	MSc Thesis	12	24				Petroleum Engineering			
528	PETE 602	Research Seminar	3	6				Petroleum Engineering			
529	PETE 606	Advanced Enhanced Oil Recovery	3	6				Petroleum Engineering	SEDS		
530	PETE 610	Advanced Reservoir Geomechanics	3	6				Petroleum Engineering	SEDS		
531	PETE 702	Current Research Literature	4	8				Science, Engineering and Technology			
532	PETE 703	Advanced Reservoir Engineering	4	8				Science, Engineering and Technology			
533	PETE 803	Advanced Enhanced Oil Recovery	4	8				Science, Engineering and Technology			
534	PETE 890-0	Thesis Research	0	0				Science, Engineering and Technology			
SMG											
535	SMG 100	Introduction to Natural Resources Extraction	3	6				1 year UG SMG, Undeclared SMG	1 year UG SEDS, 1 year UG SSH	SEDS, SMG, SSH, SoM	

536	SMG 210	Strength of Materials	3	6	SMG 100 Introduction to Natural Resources Extraction (4773) (C- and above) AND MATH 162 Calculus II (170) (C- and above) AND PHYS 161 Physics I for Scientists and Engineers with Laboratory (116) (C- and above)			1 year UG SMG	SEDS, SMG, SSH, SoM		
537	SMG 520	Research Methods	3	6				Mining Engineering, Petroleum Engineering	GSB, GSE, GSPP, SEDS, SSH, SoM		
School of Engineering											
538	DENG 789	Doctoral Seminar I	3	6	DENG 785 PhD Proposal Oral Defence (2604) (P)			SEDS			
539	DENG 790	Doctoral Seminar II	3	6	DENG 789 Doctoral Seminar I (4598) (P)			Science, Engineering and Technology			
540	DENG 791	Doctoral Seminar III	3	6	DENG 790 Doctoral Seminar II (4599) (P)						
541	DENG 792	Doctoral Seminar IV	3	6	DENG 791 Doctoral Seminar III (4600) (P)			Science, Engineering and Technology			
542	DENG 794	Dissertation Research	12	24	DENG 785 PhD Proposal Oral Defence (2604) (P)			Science, Engineering and Technology			
543	DENG 796	Thesis Completion	0	0				Science, Engineering and Technology			
544	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			
SCAI											
Computer Science											
545	CSCI 101	Introduction to Computational Sciences	3	6				SSH			

546	CSCI 111	Web Programming and Problem Solving	3	6			CSCI 101 Introduction to Computational Sciences (147) (D and above) OR CSCI 115 Programming Fundamentals (5257) (D and above) OR CSCI 151 Programming for Scientists and Engineers (192) (D and above) OR ENG 101 Programming for Engineers (4517) (D and above)	SSH			
547	CSCI 115	Programming Fundamentals	4	8			CSCI 101 Introduction to Computational Sciences (147) (D and above) OR CSCI 111 Web Programming and Problem Solving (110) (D and above) OR CSCI 151 Programming for Scientists and Engineers (192) (D and above) OR ENG 101 Programming for Engineers (4517) (D and above)	Biological Sciences, Chemistry	SSH		

548	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)	Computer Science	Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
549	CSCI 152	Performance and Data Structures	4	8	CSCI 151 Programming for Scientists and Engineers (192) (C- and above)			Computer Science, Mathematics, Physics, Robotics and Mechatronics	SSH	SEDS, SMG, SoM	
550	CSCI 245	System Analysis and Design	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science	SEDS	SMG, SSH, SoM	
551	CSCI 270	Algorithms	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)	MATH 251 Discrete Mathematics (85) (D and above)		Computer Science	SEDS	SMG, SSH, SoM	
552	CSCI 272	Formal Languages	3	6	CSCI 151 Programming for Scientists and Engineers (192) (C- and above)	MATH 251 Discrete Mathematics (85) (D and above)		Computer Science	SEDS	SMG, SSH, SoM	
553	CSCI 307	Research Methods	3	6				3 year UG SEDS Computer Science			
554	CSCI 330	Mobile Computing	3	6	CSCI 332 Operating Systems (490) (C- and above)			Computer Science	SEDS	SMG, SSH, SoM	
555	CSCI 332	Operating Systems	3	6	CSCI 231 Computer Systems and Organization (194) (D and above)			Computer Science	SEDS	SMG, SSH, SoM	
556	CSCI 333	Computer Networks	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science	SEDS	SMG, SSH, SoM	
557	CSCI 399A	Internship II - A	1	2				Registration by School Admin only			
558	CSCI 409	Senior Project II	3	6	CSCI 408 Senior Project I (1481) (C- and above)			4 year UG SEDS Computer Science			

559	CSCI 447	Machine Learning: Theory and Practice	3	6	MATH 273 Linear Algebra with Applications (84) (C and above) AND MATH 321 Probability (482) (C and above)			Computer Science	SEDS	SMG, SSH, SoM	
560	CSCI 462	Open Source Software	3	6	CSCI 361 Software Engineering (640) (C- and above)			Computer Science	SEDS	SMG, SSH, SoM	
561	CSCI 502	Hardware Software Co-Design	3	6	CSCI 501 Software Principles and Practice (2408) (C- and above)			Computer Science	SEDS		
562	CSCI 545	Big Data Analytics	3	6				Data Science	SEDS	GSB, GSE, GSPP, SMG, SSH, SoM	
563	CSCI 547	Algorithmic Trading	3	6				Computer Science	SEDS		
564	CSCI 581	Acquisition and Analysis of Biomedical Data	3	6				Computer Science	SEDS		
565	CSCI 591	Advanced Artificial Intelligence	3	6	CSCI 501 Software Principles and Practice (2408) (C- and above) OR DS 501 Fundamentals of Data Science (5218) (C- and above)			Computer Science	SEDS		
566	CSCI 700-0	Thesis Research	0	0				Science, Engineering and Technology			
567	CSCI 702	Advanced Hardware/Software Co-Design	4	8				Science, Engineering and Technology			
568	CSCI 722	Current Research Literature	4	8				Science, Engineering and Technology			
569	CSCI 745	Advanced Big Data Analytics	4	8				Science, Engineering and Technology			
570	CSCI 747	Advanced Algorithmic Trading	4	8				Science, Engineering and Technology			
571	CSCI 791	Advanced Artificial Reasoning and Problem solving	4	8				Science, Engineering and Technology			
572	DS 502	Probability and Statistics for Data Science	3	6				Data Science			
573	DS 504	Data Mining and Decision Support	3	6				Data Science	SEDS	GSB, GSE, GSPP, SMG, SSH, SoM	
574	DS 704	Advanced Data Mining and Decision Support	4	8				Science, Engineering and Technology			

575	SST 592	Research Seminar	3	6				Applied Mathematics, Biological Sciences, Chemistry, Computer Science, Data Science, Physics, Robotics	SEDS		
576	SST 692	Thesis	15	30				Applied Mathematics, Biological Sciences, Chemistry, Computer Science, Physics, Robotics	SEDS		
Mathematics											
577	MATH 161	Calculus I	4	8				Biological Sciences, Chemistry	1 year UG SEDS, 1 year UG SMG, 1 year UG SOM, 1 year UG SSH	SEDS, SMG, SSH, SoM	
578	MATH 162	Calculus II	4	8	MATH 161 Calculus I (118) (C and above)			1 year UG SEDS, 1 year UG SMG, 1 year UG SSH Mathematics, 1 year UG SSH Physics	Mathematics, Physics, SEDS, SMG	SSH, SoM	
579	MATH 251	Discrete Mathematics	3	6	MATH 161 Calculus I (118) (C and above)			2 year UG SEDS Computer Science, 2 year UG SSH Mathematics	Computer Science, Mathematics	SEDS, SMG, SSH, SoM	
580	MATH 263	Calculus III	4	8	MATH 162 Calculus II (170) (C and above)			Mathematics	SEDS, SMG, SSH, SoM		
581	MATH 273	Linear Algebra with Applications	4	8	MATH 161 Calculus I (118) (C and above)	MATH 162 Calculus II (170) (C and above)		2 year UG SSH Chemistry	Chemistry, Computer Science, Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
582	MATH 274	Introduction to Differential Equations	3	6	MATH 162 Calculus II (170) (C and above)			2 year UG SEDS Robotics and Mechatronics, 2 year UG SSH Mathematics, 2 year UG SSH Physics	Mathematics, Physics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
583	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	SEDS, SMG, SSH, SoM		
584	MATH 302	Abstract Algebra I	3	6	MATH 273 Linear Algebra with Applications (84) (C and above) AND MATH 251 Discrete Mathematics (85) (C and above)			4 year UG SSH Mathematics	Mathematics	SEDS, SMG, SSH, SoM	
585	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 SSH Biological Sciences	Biological Sciences	SEDS, SMG, SSH, SoM	

586	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)	2 year UG SEDS Computer Science, 2 year UG SSH Mathematics, 3 year UG SEDS Robotics and Mechatronics	Computer Science, Mathematics, Robotics and Mechatronics	SEDS, SMG, SSH, SoM	
587	MATH 322	Mathematical Statistics	3	6	MATH 321 Probability (482) (C and above) OR ECON 211 Economic Statistics (2280) (C and above)			3 year UG SSH Mathematics, 4 year UG SSH Mathematics	Mathematics	SEDS, SMG, SSH, SoM	
588	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)	3 year UG SSH Mathematics, 4 year UG SSH Mathematics	Mathematics	SEDS, SMG, SSH, SoM	
589	MATH 371	Introduction to Mathematical Biology	3	6	MATH 273 Linear Algebra with Applications (84) (C and above) AND MATH 274 Introduction to Differential Equations (484) (C and above)			Mathematics	SEDS, SMG, SSH, SoM		
590	MATH 399	Internship	3	6				Instructor's Permission Required			
591	MATH 407	Graph Theory	3	6	(MATH 301 Introduction to Number Theory (613) (C and above) OR MATH 251 Discrete Mathematics (85) (C and above)) AND MATH 273 Linear Algebra with Applications (84) (C and above)			4 year UG SSH Mathematics	Mathematics	SEDS, SMG, SSH, SoM	
592	MATH 412	Nonlinear Optimization	3	6	MATH 273 Linear Algebra with Applications (84) (C and above) AND MATH 263 Calculus III (81) (C and above)			4 year UG SSH Mathematics	Mathematics	SEDS, SMG, SSH, SoM	
593	MATH 423	Actuarial Mathematics II	3	6	MATH 321 Probability (482) (C and above) OR ECON 211 Economic Statistics (2280) (C and above)			4 year UG SSH Mathematics	4 year UG SSH Economics, Mathematics	SEDS, SMG, SSH, SoM	

594	MATH 424	Mathematical Models of Actuarial Financial Economics	3	6	MATH 321 Probability (482) (C and above) OR ECON 211 Economic Statistics (2280) (C and above)			4 year UG SSH Mathematics	4 year UG SSH Economics, Mathematics	SEDS, SMG, SSH, SoM	
595	MATH 461	Real Analysis II	3	6	MATH 361 Real Analysis I (483) (C and above)			Mathematics	SEDS, SMG, SSH, SoM		
596	MATH 477	Applied Finite Element Methods	3	6	MATH 351 Numerical Methods with Applications (1166) (C and above)			4 year UG SSH Mathematics	Mathematics	SEDS, SMG, SSH, SoM	
597	MATH 482	Fourier Analysis	3	6	MATH 263 Calculus III (81) (C and above) AND MATH 274 Introduction to Differential Equations (484) (C and above)			4 year UG SSH Mathematics	Mathematics	SEDS, SMG, SSH, SoM	
598	MATH 497	Directed Study in Mathematics I	3	6							
599	MATH 498	Directed Study in Mathematics II	3	6				Instructor's Permission Required			
600	MATH 499	Capstone Project	3	6				Instructor's permission required			
601	MATH 512	Optimization Methods and Techniques	3	6				Applied Mathematics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
602	MATH 541	Data Analysis and Statistical Learning	3	6	MATH 540 Statistical Learning (2340) (B- and above)			Applied Mathematics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
603	MATH 551	Advanced Numerical Methods	3	6				Applied Mathematics	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
604	MATH 700-0	Thesis Research	0	0				Science, Engineering and Technology			
605	MATH 701	Real Analysis	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
606	MATH 702	Functional Analysis with Applications	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
607	MATH 711	Abstract Algebra	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
608	MATH 791	Topics in Mathematics	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
Robotics and Mechatronics											

609	ROBT 202	System Dynamics and Modeling	3	6	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	SEDS		
610	ROBT 204	Electrical and Electronic Circuits II with Lab	4	8	ROBT 203 Electrical and Electronic Circuits I with Lab (62) (C- and above)			Robotics and Mechatronics	SEDS		
611	ROBT 206	Microcontrollers with Lab	4	8	CSCI 150 Fundamentals of Programming (1501) (C- and above) OR CSCI 151 Programming for Scientists and Engineers (192) (C- and above) OR ENG 101 Programming for Engineers (4517) (C- and above)			Computer Science, Robotics and Mechatronics	SEDS		
612	ROBT 304	Electromechanical Systems with lab	4	8	ROBT 203 Electrical and Electronic Circuits I with Lab (62) (C- and above)			Robotics and Mechatronics	SEDS		
613	ROBT 310	Image Processing	3	6	MATH 162 Calculus II (170) (C- and above) AND MATH 273 Linear Algebra with Applications (84) (C- and above)			Robotics and Mechatronics	SEDS		
614	ROBT 312	Robotics I: Kinematics and Dynamics	3	6	ROBT 201 Mechanics: Statics and Dynamics (475) (C- and above) AND MATH 273 Linear Algebra with Applications (84) (C- and above)			Robotics and Mechatronics	SEDS		
615	ROBT 402	Robotic/Mechatronic System Design	3	6	ROBT 204 Electrical and Electronic Circuits II with Lab (491) (C- and above) AND ROBT 206 Microcontrollers with Lab (476) (C- and above)			Robotics and Mechatronics	SEDS		

616	ROBT 407	Machine Learning with Applications	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	SEDS		
617	ROBT 491	Graduation Project	3	6	ROBT 391 Research methods (7418) (C- and above)			Robotics and Mechatronics	SEDS		
618	ROBT 502	Robot Perception & Vision	3	6	ROBT 501 Advanced Robot Kinematics (2263) (C- and above)			Computer Science, Robotics	SEDS		
619	ROBT 700-0	Thesis Research	0	0				Science, Engineering and Technology			
620	ROBT 702	Advanced Robot Perception and Vision	4	8				Science, Engineering and Technology			
621	ROBT 722	Current Research Literature	4	8				Science, Engineering and Technology			