

## Course Requirements and Registration Priorities (PhD), Fall 2022

#	Abbr	Title	Cr(US)	Cr(ECTS)	PreRequisite	CoRequisite	AntiRequisite	1st priority registration	2nd priority registration	3rd priority registration	4th priority registration
<b>GSPP</b>											
<b>PhD in Public Policy</b>											
1	DPE 617	Institutions and Development Policies	4	8				2 year GSPP PhD Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
2	DPE 625	Ethical Challenges in Governance	4	8				2 year GSPP PhD Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
3	DPE 627	Public Policy and Health Issues	4	8				2 year GSPP PhD Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
4	DPE 628	Good Governance and Corruption	4	8				2 year GSPP PhD Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
5	DPE 634	Foreign Policy Analysis	4	8				2 year GSPP PhD Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
6	DPE 648	Environmental Economics and Public Policy	4	8				2 year GSPP PhD Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
7	DPE 671	Game Theory and Public Policy	4	8				2 year GSPP PhD Public Policy	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
8	DPP 600	Developing Dissertation Research	0	0				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
9	DPP 601	Microeconomics in the Public Sector	4	8				1 year GSPP PhD Public Policy			
10	DPP 603	Public Administration and Management	4	8				1 year GSPP PhD Public Policy			
11	DPP 611	Statistics in Public Policy	4	8				1 year GSPP PhD Public Policy			
12	DPP 614	Advanced Quantitative Methods	4	8				2 year GSPP PhD Public Policy			
13	DPP 616	Advanced Qualitative Methods	4	8				2 year GSPP PhD Public Policy			
14	DPP 621	Public Policy and Analysis	4	8				1 year GSPP PhD Public Policy			
15	DPP 689	PhD Qualifying Examinations	0	0				2 year GSPP PhD Public Policy			

16	DPP 690-0	Thesis Preparation and Writing	0	0				3 year GSPP PhD Public Policy, 4 year GSPP PhD Public Policy			
<b>GSE</b>											
<b>MSc Educational Leadership HE</b>											
17	EDUC 590	Academic English Writing for Doctoral Students I	3	6				1 year GSE PhD Education			
18	EDUC 701	Education Research Methods	3	6				1 year GSE PhD Education			
19	EDUC 709	Introduction to Scholarship in Education	3	6				1 year GSE PhD Education			
20	EDUC 712	Educational Policy and Reform	3	6				1 year GSE PhD Education			
21	EDUC 727	Exploring the Research Topic 1	0	0				1 year GSE PhD Education			
22	EDUC 730	Preparation for Proposal Defence	0	0				2 year GSE PhD Education			
23	EDUC 731	Proposal Defence	3	6				4 year GSE, 4 year GSE (pending graduation)			
24	EDUC 733	Thesis Proposal Defense	12.5	25				2 year GSE PhD Education, 3 year GSE PhD Education			
25	EDUC 740	Doctoral Seminar	3	6				3 year GSE PhD Education, 4 year GSE (pending graduation), 4 year GSE PhD Education, 5 year GSE (pending graduation), 6 year GSE (pending graduation), 7 year GSE (pending graduation), 8 year GSE (pending graduation), 9 year GSE (pending graduation)			
26	EDUC 750	Dissertation Research	9	18				4 year GSE PhD Education			
27	EDUC 751	Dissertation Research	0	0				3 year GSE PhD Education			
28	EDUC 800	International Study	12	24				2 year GSE PhD Education			
<b>SoM</b>											
<b>PHD</b>											
29	PHDBS 701-0	Thesis Research	0	0				Biomedical Sciences			
30	PHDBS 702	Molecular Basis of Health and Disease	4	8				Biomedical Sciences	Life Sciences		
31	PHDBS 703	Biomedical Research Analysis and Design of Experimentation	4	8				Biomedical Sciences	Life Sciences		
32	PHDBS 704-0	NUSOM seminar	0	0				Biomedical Sciences			

33	PHDBS 705	Biosafety, Animal Welfare and Ethics	4	8				Biomedical Sciences	Life Sciences		
34	PHDBS 706	Advanced Biomedical Research Analysis and Design of Experimentation	4	8				Biomedical Sciences			
35	PHDBS 707	Publication Analysis	4	8				Biomedical Sciences			
36	PHDBS 708	Writing for Biomedical Sciences	3	6				Biomedical Sciences	Life Sciences		
37	PHDBS 710	Molecular Pathology of Cancer	3	6				Biomedical Sciences	Life Sciences		
38	PHDGH 701-0	Thesis Research	0	0				Global Health			
39	PHDGH 702	Foundations of Global Health	4	8				Global Health			
40	PHDGH 703	Health Policy and Systems in Global Health	4	8				Global Health			
41	PHDGH 704-0	NUSOM Seminar in Global Health	0	0				Global Health			
<b>SMG</b>											
<b>Mining Engineering</b>											
42	MINE 890-0	Thesis Research	0	0				Mining Engineering			
<b>Petroleum Engineering</b>											
43	PETE 701	Advanced Well Engineering	4	8				SMG	SEDS		
44	PETE 805	Special Topics in Petroleum Engineering: Data Analytics	4	8				SMG	SEDS		
45	PETE 890	Thesis Research	0	0				Petroleum Engineering			
<b>School of Mining and Geosciences</b>											
46	SMG 710	Research Methods and Statistics	3	6				SMG	SEDS		
<b>SSH</b>											
<b>Area Studies</b>											
47	EAS 700	Introduction to Eurasia	4	8				Eurasian Studies	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
48	EAS 701	Critical Issues in Eurasian Studies	2	4				Eurasian Studies	GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		
49	EAS 702	Elective in Eurasian Humanities	4	8				Instructor's Permission Required. Registration through Add Course form only!			

50	EAS 703	Elective in Eurasian Social Sciences	4	8				Instructor's Permission Required. Registration through Add Course form only!			
51	EAS 704	Elective 2 in Eurasian Humanities	4	8				Instructor's Permission Required. Registration through Add Course form only!			
52	EAS 705	Elective 2 in Social Sciences	4	8				Instructor's Permission Required. Registration through Add Course form only!			
53	EAS 708	Proseminar in Eurasian Humanities	4	8				Instructor's Permission Required. Registration through Add Course form only!			
54	EAS 710	Independent Study in Eurasian Studies	4	8							
55	EAS 711	Doctoral Seminar in Eurasian Studies I	4	8				Eurasian Studies	GSB, GSE, GSPP, SEDS, SMG, SoM		
56	EAS 800-0	Dissertation Research in Eurasian Studies	0	0				Eurasian Studies	GSB, GSE, GSPP, SEDS, SMG, SoM		
<b>Biological Science</b>											
57	BIOL 800-0	Thesis Research	0	0				Life Sciences			
58	BIOL 820	Statistical Methods in Life Sciences	3	6				Biomedical Sciences, Life Sciences	GSB, GSE, GSPP, SEDS, SMG, SoM		
59	BIOL 831	Synthetic Biology	4	8				Biomedical Sciences, Life Sciences	GSB, GSE, GSPP, SEDS, SMG, SoM		
60	BIOL 832	Drug Discovery and Design	4	8				Biomedical Sciences, Life Sciences	GSB, GSE, GSPP, SEDS, SMG, SoM		
61	BIOL 834	Advanced Cancer Biology	4	8				Biomedical Sciences, Life Sciences	GSB, GSE, GSPP, SEDS, SMG, SoM		
62	BIOL 850	Structural and Molecular Biology in Health and Disease	4	8				Biomedical Sciences, Life Sciences	GSB, GSE, GSPP, SEDS, SMG, SoM		
63	BIOL 860	Molecular Biology of Prokaryotic Cells	4	8				Biomedical Sciences, Life Sciences	GSB, GSE, GSPP, SEDS, SMG, SoM		
<b>Chemistry</b>											
64	CHEM 700	Hot Topics in Chemistry	4	8				Chemistry	GSB, GSE, GSPP, SEDS, SMG, SoM		
65	CHEM 711	Polymer Chemistry	4	8				Chemistry	GSB, GSE, GSPP, SEDS, SMG, SoM		
66	CHEM 720	Spectrochemical Methods of analysis	4	8				Chemistry	GSB, GSE, GSPP, SEDS, SMG, SoM		
67	CHEM 722	Advanced Environmental Chemistry	4	8				Chemistry	GSB, GSE, GSPP, SEDS, SMG, SoM		

68	CHEM 730	Chemical Thermodynamics and Kinetics	4	8				Chemistry	GSB, GSE, GSPP, SEDS, SMG, SoM		
69	CHEM 750	Modern Inorganic Chemistry	4	8				Chemistry	GSB, GSE, GSPP, SEDS, SMG, SoM		
70	CHEM 798-0	Thesis Research	0	0							
<b>Communication and Composition</b>											
71	WCS 730	From Genre to Style and Back: Writing for PhD Students	4	8				Instructor's Permission Required. Registration through Add Course form only!			
<b>Kazakh Language and Turkic Studies</b>											
72	TUR 775	Doctoral Topic in Turkic Studies	4	8				Instructor's Permission Required. Registration through Add Course form only!			
<b>Mathematics</b>											
73	MATH 700-0	Thesis Research	0	0				Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
74	MATH 701	Real Analysis	4	8				Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
75	MATH 721	Nonlinear Differential Equations with Applications	4	8				Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
76	MATH 722	Advanced Partial Differential Equations	4	8	MATH 701 Real Analysis (5489) (B and above)			Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
<b>Physics</b>											
77	PHYS 700-0	Thesis Research	0	0				Physics			
78	PHYS 705	Classical Mechanics	4	8				SEDS, SSH			
79	PHYS 711	Computational Modeling and Simulation	4	8				SEDS, SSH			
80	PHYS 715	Classical Electrodynamics	4	8				SEDS, SSH			
81	PHYS 730	Solid State Physics	4	8				SEDS, SSH			
82	PHYS 750	Advanced Mathematical Physics	4	8				SEDS, SSH			
<b>SEDS</b>											
<b>Chemical and Materials Engineering</b>											
83	DCHME 700-0	Thesis Research	0	0				1 year PhD SEDS Chemical Engineering, Chemical Engineering	Science, Engineering and Technology		

84	DCHME 755	Integrated Computational Materials Engineering	4	8				1 year PhD SEDS Chemical Engineering	Science, Engineering and Technology		
85	DCHME 761	Advanced Chemical Reaction Engineering	4	8				1 year PhD SEDS Chemical Engineering	Science, Engineering and Technology		
86	DCHME 762	Advanced Materials Processing	4	8				1 year PhD SEDS Chemical Engineering	Science, Engineering and Technology		
<b>Civil and Environmental Engineering</b>											
87	DCEE 700-0	Thesis Research	0	0				1 year PhD SEDS Civil Engineering	SEDS		
88	DCEE 750	Finite Element Methods	4	8				1 year PhD SEDS Civil Engineering	SEDS	SMG	
89	DCEE 757	Advanced Environmental Chemistry	4	8				1 year PhD SEDS Civil Engineering	SEDS		
90	DCEE 761	Advanced Soil Mechanics	4	8				1 year PhD SEDS Civil Engineering	SEDS	SMG	
91	DCEE 772	Engineering Management and Engineering Economy	4	8				1 year PhD SEDS Civil Engineering	SEDS	SMG	
92	DCEE 773	Unsaturated Soil Mechanics for Engineering Practice	4	8				1 year PhD SEDS Civil Engineering	SEDS		
<b>Computer Science</b>											
93	CSCI 700-0	Thesis Research	0	0				1 year PhD SEDS Computer Science, Computer Science			
94	CSCI 701	Advanced Software Principles and Practice	4	8				Computer Science , Robotics Engineering	SEDS	SSH	
95	CSCI 711	Advanced Theory of Computation	4	8				Computer Science , Robotics Engineering	SEDS	SSH	
96	CSCI 785	Advanced Computer Vision	4	8				Computer Science , Robotics Engineering	SEDS	SSH	
97	CSCI 794	Advanced Deep Learning	4	8				Computer Science , Robotics Engineering	SEDS	SSH	
<b>Electrical and Computer Engineering</b>											
98	DELCE 700-0	Thesis Research	0	0				1 year PhD SEDS Electrical Engineering	Electrical Engineering		
99	DELCE 753	Stochastic Processes	4	8				1 year PhD SEDS Electrical Engineering	SEDS		
100	DELCE 761	Advanced Data Structures and Algorithms	4	8				1 year PhD SEDS Electrical Engineering	SEDS		
<b>Mechanical and Aerospace Engineering</b>											
101	DMAE 700-0	Thesis Research	0	0				1 year PhD SEDS Mechanical Engineering, Mechanical Engineering			
102	DMAE 701	Advanced Applied Mathematics	4	8				1 year PhD SEDS Mechanical Engineering	SEDS		

103	DMAE 750	Advanced Statistics and Probability	4	8			MSC 615 Advanced Statistics and Probability (2394) (B- and above)	1 year PhD SEDS Mechanical Engineering	SEDS		
104	DMAE 751	Modern Control Engineering	4	8				1 year PhD SEDS Mechanical Engineering	SEDS		
105	DMAE 753	Computational and Unsteady Aerodynamics	4	8				1 year PhD SEDS Mechanical Engineering			
106	DMAE 765	Advanced Manufacturing Processes and Strategies	4	8				1 year PhD SEDS Mechanical Engineering	SEDS		
<b>Robotics and Mechatronics</b>											
107	ROBT 700-0	Thesis Research	0	0				1 year PhD SEDS Robotics Engineering	Robotics Engineering, Science, Engineering and Technology		
108	ROBT 701	Advanced Robot Manipulation and Mobility	4	8				1 year PhD SEDS Robotics Engineering	Robotics Engineering, Science, Engineering and Technology		
109	ROBT 703	Advanced Optimal Control and Planning	4	8				1 year PhD SEDS Robotics Engineering	Robotics Engineering, Science, Engineering and Technology		
110	ROBT 709	Advanced Robot Dynamics and Control	4	8				1 year PhD SEDS Robotics Engineering	Robotics Engineering, Science, Engineering and Technology		
<b>School of Engineering</b>											
111	DENG 700	Thesis Research	89	178							
112	DENG 700-0	Thesis Research	0	0				Science, Engineering and Technology			
113	DENG 782	Research Methods and Ethics	3	6				SEDS, SSH	SMG		
114	DENG 792	Doctoral Seminar IV	3	6	DENG 791 Doctoral Seminar III (4600) (P)			Science, Engineering and Technology			
115	DENG 794	Dissertation Research	12	24	DENG 785 PhD Proposal Oral Defence (2604) (P)			Science, Engineering and Technology			

116	DENG 795	Research at Host University	6	12	DENG 785 PhD Proposal Oral Defence (2604) (P)			Science, Engineering and Technology			
117	DENG 796	Thesis Completion	0	0				Science, Engineering and Technology			
118	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			
119	DENG 798	Doctoral Seminar VI	3	6	DENG 793 Doctoral Seminar V (4602) (P)			Science, Engineering and Technology			
120	DENG 799	Doctoral Seminar VII	3	6	DENG 798 Doctoral Seminar VI (4607) (P)			Science, Engineering and Technology			