

## Course Requirements and Registration Priorities (PhD), Spring 2023

#	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	DPP 600	Developing Dissertation Research	0	0				Public Policy			
2	DPP 602	Macroeconomics in Public Sector	4	8				1 year GSPP PhD Public Policy			
3	DPP 613	Research Design (qualitative and quantitative)	4	8				1 year GSPP PhD Public Policy			
4	DPP 615	Law, Governance and Public Policy	4	8				1 year GSPP PhD Public Policy			
5	DPP 631	Politics of Public Policy	4	8				1 year GSPP PhD Public Policy			
6	DPP 689	PhD Qualifying Examinations	0	0				2 year GSPP PhD Public Policy			
7	DPP 689-1	PhD Qualifying Examination: Field Exam	0	0							
8	DPP 690	Thesis Preparation and Writing	66	132	DPP 689 PhD Qualifying Examinations (4830) (P) AND DPP 699 Thesis Design and Written Proposal (4831) (B- and above)			4 year GSPP PhD Public Policy			
9	DPP 690-0	Thesis Preparation and Writing	0	0				3 year GSPP PhD Public Policy, 4 year GSPP PhD Public Policy			
10	DPP 699	Thesis Design and Written Proposal	6	12				2 year GSPP PhD Public Policy			
<b>GSE</b>											
<b>MSc Educational Leadership HE</b>											
11	EDUC 591	Academic English Writing for Doctoral Students II	3	6				2 year GSE PhD Education			
12	EDUC 592	Academic English Writing for Doctoral Students III	3	6				4 year GSE PhD Education			
13	EDUC 704	Advanced Methods of Education Research	3	6				1 year GSE PhD Education			
14	EDUC 705	Advanced Methods of Education Research: Qualitative Methods	3	6				1 year GSE PhD Education			

15	EDUC 711	Globalisation and Education	3	6				1 year GSE PhD Education			
16	EDUC 720	Philosophy of Education	3	6				1 year GSE PhD Education			
17	EDUC 728	Exploring the Research Topic 2	0	0				1 year GSE PhD Education			
18	EDUC 730	Preparation for Proposal Defence	0	0				2 year GSE PhD Education			
19	EDUC 740	Doctoral Seminar	3	6				3 year GSE PhD Education			
20	EDUC 750	Dissertation Research	9	18				4 year GSE PhD Education			
21	EDUC 751	Dissertation Research	0	0				3 year GSE PhD Education			
<b>SoM</b>											
<b>PHD</b>											
22	PHDBS 701-0	Thesis Research	0	0				Biomedical Sciences		SoM	
23	PHDBS 702	Molecular Basis of Health and Disease	4	8				Biomedical Sciences	Life Sciences	SoM	
24	PHDBS 703	Biomedical Research Analysis and Design of Experimentation	4	8				Biomedical Sciences	Life Sciences	SoM	
25	PHDBS 704	NUSOM seminar (final semester)	4	8				4 year PhD SOM BioMed Sciences			
26	PHDBS 704-0	NUSOM seminar	0	0				Biomedical Sciences		SoM	
27	PHDBS 706	Advanced Biomedical Research Analysis and Design of Experimentation	4	8				Biomedical Sciences		SoM	
28	PHDBS 707	Publication Analysis	4	8				Biomedical Sciences		SoM	
29	PHDBS 708	Writing for Biomedical Sciences	3	6				Biomedical Sciences	Life Sciences	SoM	
30	PHDBS 715	Molecular Basis of Neurological Disorders	3	6				Biomedical Sciences	Life Sciences	SoM	
31	PHDGH 701-0	Thesis Research	0	0				SoM			
32	PHDGH 704-0	NUSOM Seminar in Global Health	0	0				SoM			
33	PHDGH 705	Global Health into Action	3	6				SoM			
34	PHDGH 706	Methods in Global Health Research	3	6				SoM			
35	PHDGH 707	Implementation Science in Global Health	3	6				SoM			
<b>SMG</b>											

Mining Engineering										
36	MINE 701	Advanced Mine Geomechanics	4	8				1 year PhD SMG Mining Engineering		
37	MINE 702	Current Research Literature	4	8				1 year PhD SMG Mining Engineering		
38	MINE 703	Advanced Mining Systems	4	8				1 year PhD SMG Mining Engineering	Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology	
39	MINE 803	Advanced Geometallurgy	4	8				1 year PhD SMG Mining Engineering		
40	MINE 890-0	Thesis Research	0	0				Mining Engineering, Petroleum Engineering		
Petroleum Engineering										
41	PETE 702	Current Research Literature	4	8				Petroleum Engineering		
42	PETE 703	Advanced Reservoir Engineering	4	8				Mining Engineering, Petroleum Engineering	Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology	
43	PETE 801	Advanced Reservoir Simulation	4	8				Mining Engineering, Petroleum Engineering	Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology	

44	PETE 803	Advanced Enhanced Oil Recovery	4	8				Mining Engineering, Petroleum Engineering	Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology		
45	PETE 890	Thesis Research	0	0				Petroleum Engineering			
<b>SSH</b>											
<b>Area Studies</b>											
46	EAS 702	Elective in Eurasian Humanities	4	8				Instructor's Permission Required. Registration through Add Course form only!			
47	EAS 703	Elective in Eurasian Social Sciences	4	8				Instructor's Permission Required. Registration through Add Course form only!			
48	EAS 704	Elective 2 in Eurasian Humanities	4	8				Instructor's Permission Required. Registration through Add Course form only!			
49	EAS 705	Elective 2 in Social Sciences	4	8				Instructor's Permission Required. Registration through Add Course form only!			
50	EAS 708	Proseminar in Eurasian Humanities	4	8				Instructor's Permission Required. Registration through Add Course form only!			
51	EAS 709	Proseminar in Eurasian Social Sciences	4	8				Instructor's Permission Required. Registration through Add Course form only!			
52	EAS 710	Independent Study in Eurasian Studies	4	8				Instructor's Permission Required. Registration through Add Course form only!			
53	EAS 712	Doctoral Seminar in Eurasian Studies II	4	8				Eurasian Studies			
54	EAS 713	Qualifying Examination	0	0				Eurasian Studies			
55	EAS 800-0	Dissertation Research in Eurasian Studies	0	0				Eurasian Studies			

**Biological Science**

56	BIOL 800-0	Thesis Research	0	0				Life Sciences		
57	BIOL 830	Advanced Neuroscience	4	8				Biomedical Sciences, Life Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM
58	BIOL 870	Advanced Biotechnology	4	8				Biomedical Sciences, Life Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM
59	BIOL 880	Applied Bioinformatics	4	8				Biomedical Sciences, Life Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM
60	BIOL 891	Cellular Biophysics	4	8				Biomedical Sciences, Life Sciences	SSH	GSB, GSE, GSPP, SEDS, SMG, SoM

**Chemistry**

61	CHEM 710	Mechanistic Principles of Organic Reactions	4	8				Chemistry	SSH	SEDS, SMG, SoM
62	CHEM 731	Design of Functional Materials	4	8				Chemistry	SSH	SEDS, SMG, SoM
63	CHEM 733	Colloid and Surfactant Science	4	8				Chemistry	SSH	SEDS, SMG, SoM
64	CHEM 752	Materials Chemistry	4	8				Chemistry	SSH	SEDS, SMG, SoM
65	CHEM 753	Organometallic Catalysis	4	8	CHEM 750 Modern Inorganic Chemistry (6499) (C and above)			Chemistry	SSH	SEDS, SMG, SoM
66	CHEM 798-0	Thesis Research	0	0				Chemistry		

**Kazakh Language and Turkic Studies**

67	TUR 775	Doctoral Topic in Turkic Studies	4	8						
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**Languages, Literature and Linguistics**

68	LING 772	Language Ideologies	4	8				Biomedical Sciences, Chemical Engineering, Chemistry, Civil Engineering, Computer Science , Education, Electrical Engineering, Eurasian Studies, Global Health, Life Sciences, Mathematics, Mechanical Engineering, Mining Engineering, Petroleum Engineering, Physics, Public Policy, Robotics Engineering, Science, Engineering and Technology			
<b>Mathematics</b>											
69	MATH 700-0	Thesis Research	0	0				Mathematics			
70	MATH 702	Functional Analysis with Applications	4	8				Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
71	MATH 761	Mathematical Finance	4	8				Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
72	MATH 771	Operations Research	4	8				Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
73	MATH 791	Topics in Mathematics	4	8				Mathematics	SEDS, SSH	GSB, GSE, GSPP, SMG, SoM	
<b>Physics</b>											
74	PHYS 700-0	Thesis Research	0	0				Physics			
75	PHYS 701	Current Research Literature	3	6				Physics			
76	PHYS 710	Quantum Mechanics	4	8				Physics			
77	PHYS 720	Statistical Physics	4	8				Physics			
78	PHYS 770	Introduction to Optoelectronics	4	8				Physics			
<b>SEDS</b>											
<b>Chemical and Materials Engineering</b>											
79	DCHME 700-0	Thesis Research	0	0				Chemical Engineering			
80	DCHME 701	Current Research Literature	4	8				Chemical Engineering			

81	DCHME 752	Polymer Melt Fluid Mechanics and Processing	4	8				Chemical Engineering		
82	DCHME 757	Advanced Chemical Engineering Thermodynamics	4	8				Chemical Engineering		
83	DCHME 763	Advanced Heat and Mass Transfer	4	8				Chemical Engineering		
84	DCHME 766	Advanced Energy Materials and Their Application	4	8				Chemical Engineering		
<b>Civil and Environmental Engineering</b>										
85	DCEE 700	Thesis Research	89	178						
86	DCEE 700-0	Thesis Research	0	0				Civil Engineering		
87	DCEE 701	Current Research Literature	4	8				2 year PhD SEDS Civil Engineering	Civil Engineering	
88	DCEE 751	Structural Dynamics and Earthquake Engineering	4	8				1 year PhD SEDS Civil Engineering	2 year PhD SEDS Civil Engineering	
89	DCEE 752	Advanced Concrete Technology	4	8				1 year PhD SEDS Civil Engineering	2 year PhD SEDS Civil Engineering	
90	DCEE 755	Contaminated Site Management and Soil Treatment Technologies	4	8				1 year PhD SEDS Civil Engineering	2 year PhD SEDS Civil Engineering	
91	DCEE 762	Advanced Project Management	4	8				1 year PhD SEDS Civil Engineering, Civil Engineering	2 year PhD SEDS Civil Engineering	
92	DCEE 771	Soil Improvement and Stabilization	4	8				1 year PhD SEDS Civil Engineering	2 year PhD SEDS Civil Engineering	
<b>Computer Science</b>										
93	CSCI 700-0	Thesis Research	0	0				Computer Science		
94	CSCI 702	Advanced Hardware/Software Co-Design	4	8				Computer Science , Robotics Engineering		
95	CSCI 722	Current Research Literature	4	8				Computer Science		
96	CSCI 745	Advanced Big Data Analytics	4	8				Computer Science	Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology	
97	CSCI 775	Advanced Formal Methods and Applications	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM		

98	CSCI 781	Advanced Acquisition and Analysis of Biomedical Data	4	8				Computer Science	Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology		
99	CSCI 785	Advanced Computer Vision	4	8				Computer Science	Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, Science, Engineering and Technology		
100	CSCI 791	Advanced Artificial Reasoning and Problem solving	4	8				Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology			
101	DS 709	Advanced Information Retrieval	4	8				GSB, GSE, GSPP, SEDS, SMG, SSH, SoM			
<b>Electrical and Computer Engineering</b>											
102	DELCE 700-0	Thesis Research	0	0				Electrical Engineering	Chemical Engineering, Civil Engineering, Computer Science , Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology		
103	DELCE 701	Current Research Literature	4	8				Electrical Engineering	Chemical Engineering, Civil Engineering, Computer Science , Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology		



104	DELCE 759	Advanced Pattern Recognition and Machine Learning	4	8				Electrical Engineering	Chemical Engineering, Civil Engineering, Computer Science , Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology		
105	DELCE 763	Advanced Electronic Circuits	4	8				Electrical Engineering	Chemical Engineering, Civil Engineering, Computer Science , Mechanical Engineering, Robotics Engineering, Science, Engineering and Technology		
<b>Mechanical and Aerospace Engineering</b>											
106	DMAE 700-0	Thesis Research	0	0				Mechanical Engineering			
107	DMAE 702	Current Research Literature	4	8				Mechanical Engineering	Science, Engineering and Technology	Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Robotics Engineering	
108	DMAE 703	Numerical Techniques for Engineers	4	8							
109	DMAE 750	Advanced Statistics and Probability	4	8			MSC 615 Advanced Statistics and Probability (2394) (B- and above)	Mechanical Engineering	Science, Engineering and Technology	Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Robotics Engineering	

110	DMAE 756	Design and Manufacturing with Environmental Concern	4	8				Mechanical Engineering	Science, Engineering and Technology	Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Robotics Engineering	
111	DMAE 769	Advanced Computational Fluid Dynamics and Heat Transfer in Mechanical Engineering	4	8				Mechanical Engineering	Science, Engineering and Technology	Chemical Engineering, Civil Engineering, Computer Science , Electrical Engineering, Robotics Engineering	
<b>Robotics and Mechatronics</b>											
112	ROBT 700-0	Thesis Research	0	0				Robotics Engineering			
<b>School of Engineering</b>											
113	DENG 700-0	Thesis Research	0	0				Science, Engineering and Technology			
114	DENG 791	Doctoral Seminar III	3	6	DENG 790 Doctoral Seminar II (4599) (P)			Science, Engineering and Technology			
115	DENG 793	Doctoral Seminar V	3	6	DENG 792 Doctoral Seminar IV (4601) (P)			Science, Engineering and Technology			
116	DENG 794	Dissertation Research	12	24	DENG 785 PhD Proposal Oral Defence (2604) (P)			Science, Engineering and Technology			
117	DENG 795	Research at Host University	6	12	DENG 785 PhD Proposal Oral Defence (2604) (P)			Science, Engineering and Technology			
118	DENG 796	Thesis Completion	0	0				Science, Engineering and Technology			

119	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			
120	DENG 798	Doctoral Seminar VI	3	6	DENG 793 Doctoral Seminar V (4602) (P)			Science, Engineering and Technology			
121	DENG 799	Doctoral Seminar VII	3	6	DENG 798 Doctoral Seminar VI (4607) (P)			Instructor's Permission Required. Registration through Add Course form only!			