

**Course Requirements and Registration Priorities
School of Science and Technology, Spring 2019**

#	Abbr	Title	Cr(US)	Cr(ECTS)	PreRequisite	CoRequisite	AntiRequisite	1st priority registration	2nd priority registration	3rd priority registration	4th priority registration
SST											
Mathematics											
1	MATH 417	Cryptography	3	6	MATH 273 Linear Algebra with Applications (84) (C and above) AND (MATH 251 Discrete Mathematics (85) (C and above) OR MATH 301 Introduction to Number Theory (613) (C and above) OR MATH 355 Introduction to Proofs (86) (C and above))			Mathematics	SST	SHSS	
SSH											
Biological Science											
2	BIOL 101	Biology for non-Science majors	3	6			BIOL 110 Modern Biology I (1070) (C- and above)	SHSS			
3	BIOL 120	Modern Biology II	3	6	BIOL 110 Modern Biology I (1070) (C and above)			Biological Sciences, Chemistry	SST	SHSS	
4	BIOL 231	Human Anatomy and Physiology II	4	8	BIOL 230 Human Anatomy and Physiology I (72) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
5	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 (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	SST	SEng, SHSS, SMG	
6	BIOL 341	Biochemistry I	3	6	CHEM 211 Organic Chemistry I (154) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
7	BIOL 341L	Biochemistry I Lab	1	2		BIOL 341 Biochemistry I (2002) (C and above)		Biological Sciences	SST	SEng, SHSS, SMG	
8	BIOL 370	Genetics	3	6	BIOL 120 Modern Biology II (1195) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
9	BIOL 420	Bioethics	3	6	BIOL 120 Modern Biology II (1195) (C and above)			3 year UG SST Biological Sciences, 3 year UG SST Chemistry, 4 year UG SST Biological Sciences, 4 year UG SST Chemistry			

10	BIOL 430	Histology with Laboratory	4	8	BIOL 230 Human Anatomy and Physiology I (72) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
11	BIOL 440	Neuroscience	3	6	BIOL 230 Human Anatomy and Physiology I (72) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
12	BIOL 450	Food Microbiology	3	6	BIOL 305 Introduction to Microbiology with Lab (1642) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
13	BIOL 450L	Food Microbiology Lab	1	2	BIOL 305 Introduction to Microbiology with Lab (1642) (C and above)	BIOL 450 Food Microbiology (4609) (C and above)		Biological Sciences	SST	SEng, SHSS, SMG	
14	BIOL 456	Biology Research Design	3	6	BIOL 355 Critical Research Reasoning (1000) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
15	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	SST	SEng, SHSS, SMG	
16	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	SST	SEng, SHSS, SMG	
17	BIOL 480	Molecular Immunology	3	6	BIOL 341 Biochemistry I (2002) (C and above) AND BIOL 410 Immunology (628) (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
18	BIOL 491	Graduation Project 2	4	8	BIOL 490 Graduation Project 1 (1581) (C- and above)			Through Add Course form only			
19	BIOL 492	Directed Study in Biology	3	6				Biological Sciences	SST	SEng, SHSS, SMG	
20	BIOL 570	Advanced Biotechnology	3	6				Biological Sciences	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
21	BIOL 580	Applied Bioinformatics	3	6	BIOL 520 Statistical Methods in Life Sciences (1203) (C+ and above)			Biological Sciences	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
22	BIOL 591	Cellular Biophysics	3	6				Biological Sciences	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
23	BIOL 600	Graduate Seminar Series	3	6				Biological Sciences			

24	BIOL 699	Research Thesis II	6	12				Instructor's permission required. Registration by Add Course form only			
Chemistry											
25	CHEM 090	Chemistry for Non-Science majors	3	6				SHSS			
26	CHEM 092	Survey of Environmental Sciences for Non-Science Majors	3	6				SHSS			
27	CHEM 101	General Chemistry I	3	6				Biological Sciences, Chemistry	SST	SHSS	
28	CHEM 102	General Chemistry II	3	6	CHEM 101 General Chemistry I (113) (C and above)			Biological Sciences, Chemistry, SMG	SST	SHSS	
29	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	SST	SHSS	
30	CHEM 211	Organic Chemistry I	3	6	CHEM 102 General Chemistry II (232) (C and above)			Chemistry	Biological Sciences	SST	
31	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	SST	
32	CHEM 212	Organic Chemistry II	3	6	CHEM 211 Organic Chemistry I (154) (C and above) OR CHEM 191 Chemistry I for Engineers (1908) (C and above)			Chemistry	Biological Sciences	SST	
33	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	SST	
34	CHEM 320	Instrumental Analysis	3	6	CHEM 220 Quantitative Chemical Analysis (555) (C and above)			Chemistry	Biological Sciences	SST	

35	CHEM 332	Physical Chemistry II	3	6	CHEM 331 Physical Chemistry I (634) (C and above) AND MATH 274 Introduction to Differential Equations (484) (C and above)		Chemistry	Biological Sciences	SST	
36	CHEM 332L	Physical Chemistry II Lab	1	2	CHEM 331L Physical Chemistry Lab (1060) (C and above)	CHEM 332 Physical Chemistry II (1056) (C and above)	Chemistry	Biological Sciences	SST	
37	CHEM 380	Research Methods	3	6			Chemistry	Biological Sciences	SST	
38	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			
39	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	SST	
40	CHEM 451	Applied Homogenous Catalysis	3	6	CHEM 350 Advanced Inorganic Chemistry (1905) (C and above)		Chemistry	Biological Sciences	SST	
41	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			
Mathematics										
42	MATH 161	Calculus I	4	8			Biological Sciences, Chemistry	1 year UG SENG, 1 year UG SHSS, 1 year UG SMG, 1 year UG SST	SEng, SHSS, SMG, SST	
43	MATH 162	Calculus II	4	8	MATH 161 Calculus I (118) (C and above)		1 year UG SENG, 1 year UG SMG, 1 year UG SST	SST	SHSS	
44	MATH 251	Discrete Mathematics	3	6	MATH 162 Calculus II (170) (C and above)		Computer Science, Mathematics	SST	SHSS	
45	MATH 263	Calculus III	4	8	MATH 162 Calculus II (170) (C and above)		Mathematics	SST	SHSS	
46	MATH 273	Linear Algebra with Applications	4	8	MATH 161 Calculus I (118) (C and above)	MATH 162 Calculus II (170) (C and above)	Mathematics	SST	SHSS	
47	MATH 274	Introduction to Differential Equations	3	6	MATH 162 Calculus II (170) (C and above)		Mathematics	SST	SHSS	
48	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)		3 year UG SST Mathematics	SST	SHSS	

49	MATH 310	Applied Statistical Methods	3	6	MATH 161 Calculus I (118) (C and above)		MATH 322 Mathematical Statistics (1165) (D and above)	Biological Sciences	SST	SHSS	
50	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)	Computer Science, Mathematics	SST	SHSS	
51	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 SST Mathematics	SST	SHSS	
52	MATH 351	Numerical Methods with Applications	3	6	MATH 274 Introduction to Differential Equations (484) (C and above) AND MATH 263 Calculus III (81) (C and above)		ENG 202 Numerical Methods in Engineering (5506) (C and above)	Mathematics	SST	SHSS	
53	MATH 361	Real Analysis I	3	6	MATH 263 Calculus III (81) (C and above) AND MATH 251 Discrete Mathematics (85) (C and above)			Mathematics	SST	SHSS	
54	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)			3 year UG SST Mathematics	Mathematics	SST	
55	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))			Mathematics	SST	SHSS	
56	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)			Mathematics	SST	SHSS	
57	MATH 423	Actuarial Mathematics II	3	6	MATH 321 Probability (482) (C and above) OR ECON 211 Economic Statistics (2280) (C and above)			Mathematics	SST	SHSS	
58	MATH 449	Statistical Programming	3	6	MATH 322 Mathematical Statistics (1165) (C and above)			4 year UG SST Mathematics	Mathematics		
59	MATH 477	Applied Finite Element Methods	3	6	MATH 351 Numerical Methods with Applications (1166) (C and above)			Mathematics	SST	SHSS	
60	MATH 480	Complex Analysis	3	6	MATH 263 Calculus III (81) (C and above)			Mathematics	SST	SHSS	

61	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)			Mathematics	SST	SHSS	
62	MATH 490	Special Topics in Mathematics I	3	6				Mathematics	SST	SHSS	
63	MATH 499	Capstone Project	3	6				Through Add Course form only			
64	MATH 512	Optimization Methods and Techniques	3	6	MATH 517 Scientific Modeling and Simulation with Mathematics (2341) (B- and above)			Applied Mathematics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
65	MATH 519	Scientific Computing	3	6				Applied Mathematics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
66	MATH 541	Data Analysis and Statistical Learning	3	6	MATH 540 Statistical Learning (2340) (B- and above)			Applied Mathematics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
67	MATH 551	Advanced Numerical Methods	3	6	MATH 517 Scientific Modeling and Simulation with Mathematics (2341) (B- and above)			Applied Mathematics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
Physics											
68	PHYS 161	Physics I for Scientists and Engineers with Laboratory	4	8		MATH 161 Calculus I (118) (C and above)	PHYS 171 Physics I for Physics Majors with Laboratory (1401) (C- and above)	1 year UG SENG, 1 year UG SMG, 1 year UG SST	SST	SHSS	
69	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 SENG, 1 year UG SMG, 1 year UG SST	SST	SHSS	
70	PHYS 202	Introductory Astrophysics	3	6	PHYS 162 Physics II for Scientists and Engineers with Laboratory (173) (C- and above)			SST		SHSS	
71	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	SST		

72	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)) AND 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))	MATH 273 Linear Algebra with Applications (84) (D and above)	Physics	SST		
73	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	SST		
74	PHYS 362	Classical Electrodynamics II	3	6	PHYS 361 Classical Electrodynamics I (651) (C- and above)		Physics	SST		
75	PHYS 370	Optics with Laboratory	4	8	PHYS 361 Classical Electrodynamics I (651) (C- and above)		Physics	SST		
76	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	SST		
77	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	SST		
78	PHYS 473	Introduction to Solid State Physics	3	6	PHYS 280 Thermodynamics and Statistical Physics (1179) (C- and above) AND PHYS 451 Quantum Mechanics I (1415) (C- and above)		Physics	SST		
79	PHYS 483	Statistical Mechanics	3	6	PHYS 280 Thermodynamics and Statistical Physics (1179) (C- and above)		Physics	SST		
80	PHYS 491	Directed Study of Advanced Physics Topics	3	6			Physics			
81	PHYS 495	Physics Colloquium	0	0			Physics			
82	PHYS 499	Honors Thesis	3	6			Physics			
83	PHYS 510	Quantum Mechanics	3	6			Physics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	

84	PHYS 520	Statistical Physics	3	6				Physics	SST	GSE, GSE, GSPP, SEng, SHSS, SMG, SoM	
85	SST 502	Teaching Practicum	3	6	SST 501 Teaching and Learning (2260) (C- and above)			Registration by SST School Office			
86	SST 504	Innovation & Entrepreneurship	3	6				Registration by SST School Office			
87	SST 592	Research Seminar	3	6				Registration by SST School Office			
88	SST 692	Thesis	15	30				Registration by SST School Office			
SEDS											
Computer Science											
89	CSCI 101	Introduction to Computational Sciences	3	6				1 year UG SHSS	SHSS		
90	CSCI 111	Web Programming & Problem Solving	3	6			CSCI 100 Computation and Problem Solving (1078) (C- and above)	1 year UG SHSS	SHSS		
91	CSCI 151	Programming for Scientists and Engineers	4	8			ROBT 102 Programming for robotics and physics (188) (C- and above) OR CSCI 150 Fundamentals of Programming (1501) (C- and above)	1 year UG SST, SMG	SST	SHSS	
92	CSCI 152	Performance and Data Structures	4	8	CSCI 151 Programming for Scientists and Engineers (192) (C- and above) OR CSCI 150 Fundamentals of Programming (1501) (C- and above) OR CSCI 261 Object Oriented Programming with Java I (171) (C- and above) OR ROBT 102 Programming for robotics and physics (188) (C- and above)			1 year UG SST	SST	SHSS	
93	CSCI 245	System Analysis and Design	3	6	CSCI 341 Database Systems (195) (C- and above)			Computer Science	SST	SEng, SHSS, SMG	
94	CSCI 270	Algorithms	3	6	CSCI 152 Performance and Data Structures (489) (C- and above) AND MATH 251 Discrete Mathematics (85) (C- and above)			2 year UG SST Computer Science	Computer Science	SEng, SHSS, SMG, SST	
95	CSCI 272	Formal Languages	3	6	CSCI 152 Performance and Data Structures (489) (C and above) AND MATH 251 Discrete Mathematics (85) (C- and above)			2 year UG SST Computer Science	Computer Science	SEng, SHSS, SMG, SST	

96	CSCI 307	Research Methods	3	6				Computer Science			
97	CSCI 325	Introduction to Parallel Systems and GPU Programming	3	6	CSCI 332 Operating Systems (490) (C- and above)			Computer Science	SST	SEng, SHSS, SMG	
98	CSCI 330	Mobile Computing	3	6	CSCI 332 Operating Systems (490) (C- and above)			Computer Science	SST	SEng, SHSS, SMG	
99	CSCI 332	Operating Systems	3	6	CSCI 231 Computer Systems and Organization (194) (C- and above)			2 year UG SST Computer Science	Computer Science	SEng, SHSS, SMG, SST	
100	CSCI 399A	Internship II - A	1	2							
101	CSCI 409	Senior Project II	3	6	CSCI 408 Senior Project I (1481) (C- and above)			4 year UG SST Computer Science			
102	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	SST	SEng, SHSS, SMG	
103	CSCI 462	Open Source Software	3	6	CSCI 361 Software Engineering (640) (C- and above)			Computer Science	SST	SEng, SHSS, SMG	
104	CSCI 502	Hardware Software Co-Design	3	6	CSCI 501 Software Principles and Practice (2408) (C- and above)			Computer Science, Robotics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
105	CSCI 515	Modeling and Simulation for Computer Science	3	6				Computer Science, Robotics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
106	CSCI 591	Advanced Artificial Intelligence	3	6	CSCI 501 Software Principles and Practice (2408) (C- and above)			Computer Science	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
Robotics and Mechatronics											
107	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	SST		
108	ROBT 204	Electrical and Electronic Circuits II with Lab	4	8	ROBT 203 Electrical and Electronic Circuits I with Lab (62) (C- and above)			Physics, Robotics and Mechatronics	SST		
109	ROBT 206	Microcontrollers with Lab	4	8	CSCI 151 Programming for Scientists and Engineers (192) (C- and above) OR ROBT 102 Programming for robotics and physics (188) (C- and above) OR CSCI 150 Fundamentals of Programming (1501) (C- and above)			Computer Science, Robotics and Mechatronics	SST		

110	ROBT 302	Mechanical Design II with Machining Laboratory	4	8	ROBT 301 Mechanical Design with CAD and Machining Laboratory (622) (C- and above)			Robotics and Mechatronics	SST		
111	ROBT 304	Electromechanical Systems with lab	4	8	ROBT 204 Electrical and Electronic Circuits II with Lab (491) (C- and above)			Robotics and Mechatronics	SST		
112	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)			Computer Science, Robotics and Mechatronics	SST		
113	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) AND ROBT 302 Mechanical Design II with Machining Laboratory (1170) (C- and above)			Robotics and Mechatronics			
114	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)			Computer Science, Robotics and Mechatronics	SST		
115	ROBT 414	Human-Robot Interaction	3	6	CSCI 152 Performance and Data Structures (489) (C- and above)			Computer Science, Robotics and Mechatronics	SST		
116	ROBT 491	Graduation Project	3	6				4 year UG SST Robotics and Mechatronics			
117	ROBT 502	Robot Perception & Vision	3	6	ROBT 501 Robot Manipulation and Mobility (2263) (C- and above)			Robotics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	