

**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											
Biological Science											
1	BIOL 101	Biology for non-Science majors	3	6				SHSS			
2	BIOL 120	Modern Biology II with Lab	4	8	BIOL 110 Modern Biology I with Lab (C- and above)		BIOL 120 Modern Biology II (C- and above) OR BIOL 120 Modern Biology II Lab (C- and above)	Biological Sciences, Chemistry	SST	SHSS	
3	BIOL 231	Human Anatomy and Physiology II	4	8	BIOL 230 Human Anatomy and Physiology I (C- and above)			Biological Sciences	SST	SEng, SHSS, SMG	
4	BIOL 301	Molecular Biology of Cell with Lab	4	8	(BIOL 110 Modern Biology I with Lab (C- and above) OR PREM 110 Pre-med Biology I with lab (C- and above) OR BIOL 110 Modern Biology I (C- and above) OR BIOL 110 Modern Biology I Lab (C- and above)) AND (BIOL 120 Modern Biology II with Lab (C- and above) OR BIOL 120 Modern Biology II (C- and above) OR BIOL 120 Modern Biology II Lab (C- and above))			Biological Sciences	SST	SEng, SHSS, SMG	
5	BIOL 341	Biochemistry I	3	6	CHEM 211 Organic Chemistry I (C- and above) OR CHEM 291 Organic Chemistry for Biologists I (C- and above)			Biological Sciences	SST	SEng, SHSS, SMG	
6	BIOL 341L	Biochemistry I Lab	1	2		BIOL 341 Biochemistry I (C and above)		Biological Sciences	SST	SEng, SHSS, SMG	
7	BIOL 370	Genetics	3	6	(BIOL 110 Modern Biology I (C- and above) OR BIOL 110 Modern Biology I with Lab (C- and above) OR PREM 110 Pre-med Biology I with lab (C- and above)) AND (BIOL 120 Modern Biology II (C- and above) OR BIOL 120 Modern Biology II with Lab (C- and above)) AND (BIOL 220 Molecular Biology of Cell (C- and above) OR BIOL 301 Molecular Biology of Cell with Lab (C- and above))			Biological Sciences	SST	SEng, SHSS, SMG	

8	BIOL 420	Bioethics	3	6	(BIOL 110 Modern Biology I (C- and above) OR BIOL 110 Modern Biology I Lab (C- and above) OR BIOL 110 Modern Biology I with Lab (C- and above)) AND (BIOL 120 Modern Biology II (C- and above) OR BIOL 120 Modern Biology II Lab (C- and above) OR BIOL 120 Modern Biology II with Lab (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			
9	BIOL 430	Histology with laboratory	4	8	BIOL 230 Human Anatomy and Physiology I (C- and above) AND BIOL 231 Human Anatomy and Physiology II (C- and above)			Biological Sciences	SST	SEng, SHSS, SMG	
10	BIOL 440	Neuroscience	3	6	BIOL 231 Human Anatomy and Physiology II (C- and above)			Biological Sciences	SST	SEng, SHSS, SMG	
11	BIOL 450	Food Microbiology	3	6	BIOL 305 Introduction to Microbiology with Lab (C- and above)			Biological Sciences	SST	SEng, SHSS, SMG	
12	BIOL 450L	Food Microbiology Lab	1	2	BIOL 305 Introduction to Microbiology with Lab (C- and above)	BIOL 450 Food Microbiology (C- and above)		Biological Sciences	SST	SEng, SHSS, SMG	
13	BIOL 456	Biology Research Design	3	6	BIOL 355 Critical Research Reasoning (C- and above)			Biological Sciences	SST	SEng, SHSS, SMG	
14	BIOL 471	Light and Electron microscopy concepts and techniques	3	6	BIOL 110 Modern Biology I with Lab (C and above) AND BIOL 120 Modern Biology II with Lab (C and above) AND CHEM 101 General Chemistry I (C and above) AND PHYS 161 Physics I for Scientists and Engineers with Laboratory (C and above)			Biological Sciences	SST	SEng, SHSS, SMG	
15	BIOL 471L	Light and Electron Microscopy Concepts and Techniques-Lab	1	2		BIOL 471 Light and Electron microscopy concepts and techniques (C and above)		Biological Sciences	SST	SEng, SHSS, SMG	
16	BIOL 480	Molecular Immunology	3	6	BIOL 341 Biochemistry I (C- and above) AND BIOL 410 Introduction to Immunology (C- and above)			Biological Sciences	SST	SEng, SHSS, SMG	
17	BIOL 491	Graduation Project 2	4	8	BIOL 490 Graduation Project 1 (C- and above)			Through Add Course form only			
18	BIOL 492	Directed study in Biology	3	6				Biological Sciences	SST	SEng, SHSS, SMG	

19	BIOL 570	Advanced Biotechnology	3	6				Biological Sciences	SST	GSE, GSE, GSPP, SEng, SHSS, SMG, SoM	
20	BIOL 580	Applied Bioinformatics	3	6	BIOL 520 Statistical Methods in Life Sciences (C+ and above)			Biological Sciences	SST	GSE, GSE, GSPP, SEng, SHSS, SMG, SoM	
21	BIOL 591	Cellular Biophysics	3	6				Biological Sciences	SST	GSE, GSE, GSPP, SEng, SHSS, SMG, SoM	
22	BIOL 600	Graduate Seminar Series	3	6				Biological Sciences			
23	BIOL 699	Research Thesis II	6	12				Instructor's permission required. Registration by Add Course form only			
Chemistry											
24	CHEM 090	Chemistry for Non-Science majors	3	6				SHSS			
25	CHEM 092	Survey of Environmental Sciences for Non-Science Majors	3	6				SHSS			
26	CHEM 101	General Chemistry I	3	6				Biological Sciences, Chemistry	SST	SHSS	
27	CHEM 102	General Chemistry II	3	6	CHEM 101 General Chemistry I (C and above)			Biological Sciences, Chemistry, SMG	SST	SHSS	
28	CHEM 102L	General Chemistry II lab	1	2	CHEM 101L General Chemistry I lab (C and above)	CHEM 102 General Chemistry II (C and above)		Biological Sciences, Chemistry, SMG	SST	SHSS	
29	CHEM 211	Organic Chemistry I	3	6	CHEM 102 General Chemistry II (C and above)			Chemistry	Biological Sciences	SST	
30	CHEM 211L	Organic Chemistry I Lab	2	4	CHEM 102L General Chemistry II lab (C and above)	CHEM 211 Organic Chemistry I (C and above)		Chemistry	Biological Sciences	SST	
31	CHEM 212	Organic Chemistry II	3	6	CHEM 211 Organic Chemistry I (C and above) OR CHEM 191 Chemistry I for Engineers (C and above)			Chemistry	Biological Sciences	SST	

32	CHEM 212L	Organic Chemistry II Lab	2	4	CHEM 211L Organic Chemistry I Lab (C and above)	CHEM 212 Organic Chemistry II (C and above) OR CHEM 292 Organic Chemistry for Biologists II (C and above)		Chemistry	Biological Sciences	SST	
33	CHEM 320	Instrumental Analysis with Labs	4	8	CHEM 220 Quantitative Chemical Analysis with lab (C and above)			Chemistry	Biological Sciences	SST	
34	CHEM 332	Physical Chemistry II	3	6	CHEM 331 Physical Chemistry I (C and above) AND MATH 274 Introduction to Differential Equations (C- and above)			Chemistry	Biological Sciences	SST	
35	CHEM 332L	Physical Chemistry II Lab	1	2	CHEM 331L Physical Chemistry Lab (C and above)	CHEM 332 Physical Chemistry II (C and above)		Chemistry	Biological Sciences	SST	
36	CHEM 380	Research Methods	3	6				Chemistry	Biological Sciences	SST	
37	CHEM 411	Advanced Organic Chemistry I	3	6	CHEM 212 Organic Chemistry II (C and above) AND MATH 161 Calculus I (C and above)			Chemistry			
38	CHEM 442	Biochemistry II with Lab-Metabolic Biochemistry	3	6	CHEM 341 Biochemistry I (C and above) AND CHEM 212 Organic Chemistry II (C and above)			Chemistry	Biological Sciences	SST	
39	CHEM 451	Applied Homogenous Catalysis	3	6	CHEM 450 Advanced Inorganic Chemistry (C and above)			Chemistry	Biological Sciences	SST	
40	CHEM 490	Nanochemistry	3	6	CHEM 331 Physical Chemistry I (C and above) AND CHEM 350 Descriptive Inorganic Chemistry (C and above)			Chemistry			
Computer Science											
41	CSCI 101	Introduction to Computational Sciences	3	6				1 year UG SHSS	SHSS		
42	CSCI 111	Web Programming & Problem Solving	3	6			CSCI 100 Computation and Problem Solving (C- and above)	1 year UG SHSS	SHSS		
43	CSCI 151	Programming for Scientists and Engineers	4	8			ROBT 102 Programming for robotics and physics (C- and above) OR CSCI 150 Fundamentals of Programming (C- and above)	1 year UG SST, SMG	SST	SHSS	

44	CSCI 152	Performance and Data Structures	4	8	CSCI 151 Programming for Scientists and Engineers (C- and above) OR CSCI 150 Fundamentals of Programming (C- and above) OR CSCI 261 Object Oriented Programming with Java I (C- and above) OR ROBT 102 Programming for robotics and physics (C- and above)			1 year UG SST	SST	SHSS	
45	CSCI 245	System Analysis and Design	3	6	CSCI 341 Database Systems (C- and above)			Computer Science	SST	SEng, SHSS, SMG	
46	CSCI 270	Algorithms	3	6	CSCI 152 Performance and Data Structures (C- and above) AND MATH 251 Discrete Mathematics (C- and above)			2 year UG SST Computer Science	Computer Science	SEng, SHSS, SMG, SST	
47	CSCI 272	Formal Languages	3	6	CSCI 152 Performance and Data Structures (C and above) AND MATH 251 Discrete Mathematics (C- and above)			2 year UG SST Computer Science	Computer Science	SEng, SHSS, SMG, SST	
48	CSCI 307	Research Methods	3	6				Computer Science			
49	CSCI 325	Introduction to Parallel Systems and GPU Programming	3	6	CSCI 332 Operating Systems (C- and above)			Computer Science	SST	SEng, SHSS, SMG	
50	CSCI 330	Mobile Computing	3	6	CSCI 332 Operating Systems (C- and above)			Computer Science	SST	SEng, SHSS, SMG	
51	CSCI 332	Operating Systems	3	6	CSCI 231 Computer Systems and Organization (C- and above)			2 year UG SST Computer Science	Computer Science	SEng, SHSS, SMG, SST	
52	CSCI 399A	Internship II - A	1	2							
53	CSCI 409	Senior Project II	3	6	CSCI 408 Senior Project I (C- and above)			4 year UG SST Computer Science			
54	CSCI 447	Machine Learning: Theory and Practice	3	6	MATH 273 Linear Algebra with Applications (C and above) AND MATH 321 Probability (C and above)			Computer Science	SST	SEng, SHSS, SMG	
55	CSCI 462	Open Source Software	3	6	CSCI 361 Software Engineering (C- and above)			Computer Science	SST	SEng, SHSS, SMG	
56	CSCI 502	Hardware Software Co-Design	3	6	CSCI 501 Software Principles and Practice (C- and above)			Computer Science, Robotics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
57	CSCI 515	Modeling and Simulation for Computer Science	3	6				Computer Science, Robotics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
58	CSCI 591	Advanced Artificial Intelligence	3	6	CSCI 501 Software Principles and Practice (C- and above)			Computer Science	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	

Mathematics

59	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	
60	MATH 162	Calculus II	4	8	MATH 161 Calculus I (C and above)			1 year UG SENG, 1 year UG SMG, 1 year UG SST	SST	SHSS	
61	MATH 251	Discrete Mathematics	3	6	MATH 162 Calculus II (C and above)			Computer Science, Mathematics	SST	SHSS	
62	MATH 263	Calculus III	4	8	MATH 162 Calculus II (C and above)			Mathematics	SST	SHSS	
63	MATH 273	Linear Algebra with Applications	4	8	MATH 161 Calculus I (C and above)	MATH 162 Calculus II (C and above)		Mathematics	SST	SHSS	
64	MATH 274	Introduction to Differential Equations	3	6	MATH 162 Calculus II (C and above) AND MATH 273 Linear Algebra with Applications (C and above)			Mathematics	SST	SHSS	
65	MATH 310	Applied Statistical Methods	3	6	MATH 161 Calculus I (C- and above)		SOC 203 Quantitative Methods in Sociology (C- and above) OR PLS 211 Quantitative Methods (C- and above)	Biological Sciences	SST	SHSS	
66	MATH 321	Probability	3	6	MATH 162 Calculus II (C and above)		ECON 211 Economic Statistics (C- and above) OR PLS 211 Quantitative Methods (C- and above)	Computer Science, Mathematics	SST	SHSS	
67	MATH 322	Mathematical Statistics	3	6	MATH 321 Probability (C- and above)			3 year UG SST Mathematics	SST	SHSS	
68	MATH 351	Numerical Methods with Applications	3	6	MATH 274 Introduction to Differential Equations (C- and above) AND MATH 263 Calculus III (C- and above)			Mathematics	SST	SHSS	
69	MATH 361	Real Analysis I	3	6	MATH 263 Calculus III (C- and above)			Mathematics	SST	SHSS	
70	MATH 371	Introduction to Mathematical Biology	3	6	MATH 273 Linear Algebra with Applications (C and above) AND MATH 274 Introduction to Differential Equations (C and above)			3 year UG SST Mathematics	Mathematics	SST	

71	MATH 402	Abstract Algebra I	3	6	MATH 273 Linear Algebra with Applications (C- and above)			3 year UG SST Mathematics	SST	SHSS	
72	MATH 407	Graph Theory	3	6	MATH 301 Introduction to Number Theory (C- and above) OR (MATH 251 Discrete Mathematics (C- and above) AND MATH 273 Linear Algebra with Applications (C- and above))			Mathematics	SST	SHSS	
73	MATH 412	Nonlinear Optimization	3	6	MATH 273 Linear Algebra with Applications (C- and above) AND (MATH 263 Calculus III (C- and above) OR MATH 169 Accelerated Calculus (C- and above))			Mathematics	SST	SHSS	
74	MATH 417	Cryptography	3	6	MATH 273 Linear Algebra with Applications (C- and above) AND (MATH 251 Discrete Mathematics (C- and above) OR MATH 301 Introduction to Number Theory (C- and above) OR MATH 355 Introduction to Proofs (C- and above))			Mathematics	SST	SHSS	
75	MATH 423	Actuarial Mathematics II	3	6	MATH 321 Probability (C- and above)			Mathematics	SST	SHSS	
76	MATH 449	Statistical Programming	3	6	MATH 322 Mathematical Statistics (C- and above)			4 year UG SST Mathematics	Mathematics		
77	MATH 477	Applied Finite Element Methods	3	6	MATH 351 Numerical Methods with Applications (C and above)			Mathematics	SST	SHSS	
78	MATH 480	Complex Analysis	3	6	MATH 263 Calculus III (C- and above)			Mathematics	SST	SHSS	
79	MATH 482	Fourier Analysis	3	6	MATH 263 Calculus III (C- and above) AND MATH 274 Introduction to Differential Equations (C- and above)			Mathematics	SST	SHSS	
80	MATH 490	Special Topics in Mathematics	3	6				Mathematics	SST	SHSS	
81	MATH 499	Capstone Project	3	6				Through Add Course form only			
82	MATH 512	Optimization Methods and Techniques	3	6	MATH 517 Scientific Modeling and Simulation with Mathematics (B- and above)			Applied Mathematics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
83	MATH 519	Scientific Computing	3	6				Applied Mathematics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
84	MATH 541	Data Analysis and Statistical Learning	3	6	MATH 540 Statistical Learning I (B- and above)			Applied Mathematics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	

85	MATH 551	Advanced Numerical Methods	3	6	MATH 517 Scientific Modeling and Simulation with Mathematics (B- and above)			Applied Mathematics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
Physics											
86	PHYS 161	Physics I for Scientists and Engineers with Laboratory	4	8		MATH 161 Calculus I (D and above) OR MATH 162 Calculus II (D and above)	PHYS 171 Physics I for Physics Majors with Laboratory (C- and above)	1 year UG SENG, 1 year UG SMG, 1 year UG SST	SST	SHSS	
87	PHYS 162	Physics II for Scientists and Engineers with Laboratory	4	8	PHYS 161 Physics I for Scientists and Engineers with Laboratory (C- and above) OR PHYS 151 Introductory Physics I with Lab (C- and above)		PHYS 172 Physics II for Physics Majors with Laboratory (C- and above)	1 year UG SENG, 1 year UG SMG, 1 year UG SST	SST	SHSS	
88	PHYS 202	Introductory Astrophysics	3	6	(PHYS 162 Physics II for Scientists and Engineers with Laboratory (C- and above) OR PHYS 172 Physics II for Physics Majors with Laboratory (C- and above)) AND (MATH 161 Calculus I (C- and above) OR MATH 169 Accelerated Calculus (C- and above))			SST	SHSS		
89	PHYS 222	Classical Mechanics II	3	6	PHYS 221 Classical Mechanics I (C- and above)			Physics	SST		
90	PHYS 270	Computational Physics with Laboratory	3	6	(CSCI 150 Fundamentals of Programming (C- and above) OR CSCI 151 Programming for Scientists and Engineers (C- and above)) AND MATH 263 Calculus III (C- and above) AND (PHYS 162 Physics II for Scientists and Engineers with Laboratory (C- and above) OR PHYS 172 Physics II for Physics Majors with Laboratory (C- and above))	MATH 273 Linear Algebra with Applications (D and above)		Physics	SST		
91	PHYS 280	Thermodynamics and Statistical Physics	3	6	MATH 263 Calculus III (C- and above) AND (PHYS 162 Physics II for Scientists and Engineers with Laboratory (C- and above) OR PHYS 172 Physics II for Physics Majors with Laboratory (C- and above))			Physics	SST		
92	PHYS 362	Classical Electrodynamics II	3	6	PHYS 361 Classical Electrodynamics I (C- and above)			Physics	SST		
93	PHYS 370	Optics with Laboratory	4	8	PHYS 361 Classical Electrodynamics I (C- and above)			Physics	SST		

94	PHYS 451	Quantum Mechanics I	3	6	(PHYS 315 Mathematical Methods of Physics (C- and above) OR PHYS 411 Advanced Mathematical Physics (C- and above)) AND PHYS 221 Classical Mechanics I (C- and above) AND PHYS 361 Classical Electrodynamics I (C- and above)		Physics	SST		
95	PHYS 463	Astrophysics and General Relativity	3	6	MATH 162 Calculus II (C- and above) AND PHYS 221 Classical Mechanics I (C- and above) AND MATH 274 Introduction to Differential Equations (C- and above)		Physics	SST		
96	PHYS 473	Introduction to Solid State Physics	3	6	PHYS 280 Thermodynamics and Statistical Physics (C- and above) AND PHYS 451 Quantum Mechanics I (C- and above)		Physics	SST		
97	PHYS 483	Statistical Mechanics	3	6			Physics	SST		
98	PHYS 491	Directed Study of Advanced Physics Topics	3	6			Physics			
99	PHYS 495	Physics Colloquium	0	0			Physics			
100	PHYS 499	Graduation Project	3	6	PHYS 451 Quantum Mechanics I (C- and above)		Physics			
101	PHYS 510	Quantum Mechanics	3	6			Physics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
102	PHYS 520	Statistical Physics	3	6			Physics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	
103	SST 502	Teaching Practicum	3	6	SST 501 Teaching and Learning (C- and above)			Registration by SST School Office		
104	SST 504	Innovation & Entrepreneurship	3	6				Registration by SST School Office		
105	SST 592	Research Seminar	3	6				Registration by SST School Office		
106	SST 692	Thesis	15	30				Registration by SST School Office		
Robotics and Mechatronics										
107	ROBT 202	System Dynamics and Modeling	3	6	MATH 162 Calculus II (C- and above) AND (PHYS 162 Physics II for Scientists and Engineers with Laboratory (C- and above) OR PHYS 172 Physics II for Physics Majors with Laboratory (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 (C- and above)			Physics, Robotics and Mechatronics	SST		
109	ROBT 206	Microcontrollers with Lab	4	8	CSCI 151 Programming for Scientists and Engineers (C- and above) OR ROBT 102 Programming for robotics and physics (C- and above) OR CSCI 150 Fundamentals of Programming (C- and above)			Computer Science, Robotics and Mechatronics	SST		
110	ROBT 302	Mechanical Design II with Machining Laboratory	4	8	ROBT 301 Mechanical Design I with CAD Laboratory (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 (C- and above)			Robotics and Mechatronics	SST		
112	ROBT 310	Image Processing	3	6	MATH 162 Calculus II (C- and above) AND MATH 273 Linear Algebra with Applications (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 (C- and above) AND ROBT 206 Microcontrollers with Lab (C- and above) AND ROBT 302 Mechanical Design II with Machining Laboratory (C- and above)			Robotics and Mechatronics			
114	ROBT 407	Statistical Methods and Machine Learning	3	6	MATH 273 Linear Algebra with Applications (C- and above)			Computer Science, Robotics and Mechatronics	SST		
115	ROBT 414	Human-Robot Interaction	3	6	CSCI 152 Performance and Data Structures (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 (C- and above)			Robotics	SST	GSB, GSE, GSPP, SEng, SHSS, SMG, SoM	