

**Electrical Engineering: Lasers and Optical Engineering Concentration**  
**Science/Math/Engineering (SME) Electives**  
**Degree Total: 2-3 credits**

Course Number	Course Title	Credits	Prerequisites	Terms
BC 351	Principles of Biochemistry	4	BZ110 or BZ120 or LIFE102; CHEM241 or CHEM245 or CHEM341 or CHEM345	F, S, SS
BIOM 100 <sup>1</sup>	Introduction to Biomedical Engineering	1		F
BIOM 200 <sup>1</sup>	Biomedical Engineering Fundamentals	2	LIFE102; MATH160; BIOM100, may be registered concurrently	F
BIOM 382B	Study Abroad-Portugal: Biom Industry and Health	1		S
BMS 300	Principles of Human Physiology	4	BZ101 or BZ110 or LIFE102; CHEM103 or CHEM107 or CHEM111	F, S, SS
BMS 301	Human Gross Anatomy	5	BZ110 or LIFE102	F, S, SS
BMS 325	Cellular Neurobiology	3	BMS300 or BMS360	F
BMS 345	Functional Neuroanatomy	4	BMS300 or BMS360	F, S
BZ 310	Cell Biology	4	(BZ110 and BZ111) or LIFE102; CHEM113	F, S, SS
CBE 101 <sup>1</sup>	Introducton to Chemical and Biological Engineering	3	CBE160, may be registered concurrently	F, S
CBE 101A <sup>1</sup>	Introducton to Chemical and Biological Engineering	2	CBE160, may be registered concurrently	F, S
CBE 101B <sup>1</sup>	Introducton to Chemical and Biological Engineering	1	CBE101A, may be registered concurrently	F, S
CBE 182A	Bridge Seminar: Chemical and Biological Engineering in Denm	3	CBE160, may be registered concurrently	F
CHEM 112	General Chemistry Lab I	1	CHEM111, may be registered concurrently or CHEM117, may be registered concurrently	F, S, SS
CHEM 245	Fundamentals of Organic Chemistry	4	CHEM107 or CHEM113	F, S, SS
CHEM 246	Fundamentals of Organic Chemistry Lab	1	CHEM108 or CHEM112 or CHEM114 or CHEM121; CHEM245, may be registered concurrently	F, S, SS
CIVE 102 <sup>1</sup>	Introduction to Civil and Environmental Engineering	3		F
CIVE 260	Engineering Mechanics – Statics	3	MATH159 or MATH160; PH141	F, S, SS
CIVE 371	Study Abroad-Peru: Grand Challenges in Engineering	3		S
CS 152 <sup>2</sup>	Introduction to Programming - Python	2	MATH124 or MATH125 or MATH126 with a B or higher <b>OR</b> MATH159 or MATH160 with a C or higher <b>OR</b> CS163	F, S
CS 165	CS2 -- Data Structures	4	CS162 with a C or higher or CS163 with a C or higher or CS164 with a C or higher	F, S
CS 214	Software Development	3	CS165 with a C or higher	F, S
CS 220	Discrete Structures and Their Applications	4	CS150B or CS152 with a B or higher <b>OR</b> CS162 or CS163 or CS164 with a C or higher; MATH159 or MATH160	F, S
CS/IDEA 310H	Design Thinking Toolbox: Mixed Reality Design	3	CS214 with a C or higher or CS253 with a C or higher or IDEA210	F, Even
CT 301 <b>or</b> CS 253	C++ Funamentals <b>or</b> Software Development with C++	2-4	CS162 with a C or higher or CS163 with a C or higher or CS164 with a C or higher <b>or</b> CS165 with a C or higher	F, S
DSCI 320	Optimization Methods in Data Science	3	CS 163 or CS 164 or CS 165 or CS 220 or DSCI 235; MATH 261; DSCI 369 or MATH 369	F
ECE 101	Foundations in ECE	1		F, S
ECE 232	Introduction to Project Practices	1	<i>Students enrolled in ECE majors prior to Fall 2021 only - does not count as both major and SME credit</i>	F, S
ECE 395 <sup>3</sup>	Independent Study	1-3		F, S, SS
ENGR 300	3D Printing Lab for Engineers	1	BIOM101 or CBE101 or CIVE102 or ECE102 or ENGR101 or MECH103	F, S, SS
ENGR 422	Technology Entrepreneurship	3	MGT340	S
ENGR 478	Applied Engineering Data Analytics	3	ECE102	S
HES 307	Biomechanical Principles of Human Movement	3	HES207 or BMS301; PH121 or PH141	F, S, SS
IDEA 310L	Design Thinking Toolbox: Creating Things that Think	2	IDEA210, may be registered concurrently	F
IDEA 310O	Design Thinking Toolbox: Digital Interaction and Game Design	3	IDEA210, may be registered concurrently	As Needed
LIFE 103	Biology of Organisms – Animals and Plants	4		F, S, SS
MATH 151	Mathematical Algorithms in Matlab I	1	MATH160	F, S
MATH 229	Matrices & Linear Equations	2	MATH160	F, S

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Course Number	Course Title	Credits	Prerequisites	Terms
MATH 235	Introduction to Mathematical Reasoning	2	MATH161	S
MATH 317	Advanced Calculus of One Variable	3	MATH161; CS220 or MATH230 or MATH235	F, S, SS
MATH 332	Partial Differential Equations	3	MATH340 or MATH345	S
MATH 360	Mathematics of Information Security	3	MATH161; MATH229 or DSCI369 or MATH369	F
MATH 366	Introduction to Abstract Algebra	3	MATH161	F, S, SS
MATH 369 <b>or</b> DSCI 369	Linear Algebra I or Linear Algebra for Data Science	3-4	MATH161 <b>or</b> MATH159 or MATH160 or MATH161	F, S, SS or F, S
MECH 103 <sup>1</sup>	Introduction to Mechanical Engineering	3		F, S
MECH 104	Study Abroad-Germany: Intro to Mech Engineering	3		F
MECH 200 <sup>1</sup>	Introduction to Manufacturing Processes	3	MECH105	F, S
MECH 201 <sup>1</sup>	Engineering Design I	2	MECH105	F, S
MECH 202 <sup>1</sup>	Engineering Design II	3	MECH 200, may be registered concurrently or (MECH 200A and MECH 200B, may be registered concurrently; MECH 201)	F, S
MECH 237 <b>or</b> MECH 337	Introduction to Thermal Science <b>or</b> Thermodynamics	3-4	MATH160; PH141 <b>or</b> MATH261; PH141	F, S
MIP 300	General Microbiology	3	BZ110 or BZ120 or LIFE102; CHEM245, may be registered concurrently or CHEM341, may be registered concurrently or CHEM345, may be registered concurrently	F, S, SS
PH 341	Mechanics	4	MATH340 or MATH345; PH141	F
PSY 253	Human Factors & Engineering Psychology	3		SS
STAT 158	Introduction to R Programming	1		S, SS
SYSE 501	Foundations of Systems Engineering	3		F, S

<sup>1</sup> These courses may not be open for enrollment for students not declared in that major. Engineering Open Option and Engineering Exploring students may apply ENGR101 to the SME requirement.

<sup>2</sup> Credit not allowed for both CS152 and CS150B - CS150B does not count for SME credit as it applies to AUCC and/or major requirements only.

<sup>3</sup> A maximum of 3 credits of Independent Study may apply towards degree requirements. This includes credits awarded for ECE395 and ECE495 combined.