

**Electrical Engineering: Aerospace Concentration  
Science/Math/Engineering (SME) Electives  
Degree Total: 7 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,SU
BIOM 200 <sup>1</sup>	Biomedical Engineering Fundamentals	2	LIFE102 or concurrent registration; MATH160	F
BIOM 350A	Study Abroad--Ecuador: Prosthetics	1-3		SU
BIOM 350C	Study Abroad--Ireland: Biomedical Engineering and Healthcare	1		S
BMS 300	Principles of Human Physiology	4	BZ101 or BZ110 or LIFE102; CHEM103 or CHEM107 or CHEM111	F,S,SU
BMS 301	Human Gross Anatomy	5	BZ110 or LIFE102	F,S,SU
BMS 325	Cellular Neurobiology	3	LIFE210	F,S
BMS 345	Functional Neuroanatomy	4	BMS300 or BMS360	F,S
BZ 310	Cell Biology	4	(BZ110 and BZ111) or LIFE102; CHEM113	F,S,SU
CBE 160	MATLAB for Chemical and Biological Engineering			F,S
CHEM 245	Fundamentals of Organic Chemistry	4	CHEM107 or CHEM113 or CHEM120	F,S,SU
CHEM 246	Fundamentals of Organic Chemistry Lab	1	CHEM108 or CHEM112 or CHEM114 or CHEM121; CHEM245 or concurrent registration	F,S,SU
CIVE 260	Engineering Mechanics – Statics	3	MATH159 or MATH160; PH141	F,S,SU
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> MATH127 with a B or higher or MATH159 or MATH160 with a C or higher <b>or</b> CS163 ***Credit not allowed for both CS150B and CS152	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	4	CS152 with a B or higher OR CS162 or CS163 or CS164 with a C or higher; MATH159 or MATH160 or concurrent registration	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	C++ Fundamentals	2-4	CS162 with a C or higher or CS163 with a C or higher or CS164 with a C or higher	F,S
CT 303	Advanced Python	2	CS150B with a C or higher or CS152 with a C or higher	S
CT 307	High Performance Programming in Rust	2	CS165	S
DSCI 320	Optimization Methods in Data Science	3	CS163 or CS164 or CS165 or CS220 or DSCI235; MATH261; DSCI369 or MATH369	F
ECE 395 <sup>3</sup>	Independent Study	1-3		F,S,SU
ENGR 300	3D Printing Lab for Engineers	1	BIOM101 or CBE101 or CIVE102 or ECE102 or ENGR101 or MECH103	F,S
ENGR 370B	Study Abroad--Netherlands: Engineering and Sustainability	3	MATH160; PH141	SU
ENGR 380A6	Sociotechnical Engineering Leadership	3	ENGR120	S
ENGR 382C	Study Abroad - Japan: Engineering and Design	3		S
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,SU
IDEA 310L	Design Thinking Toolbox: Creating Things that Think	2	IDEA210 or concurrent registration	As Needed
IDEA 310O	Design Thinking Toolbox: Digital Interaction and Game Design	3	IDEA210 or concurrent registration	As Needed
LIFE 103	Biology of Organisms – Animals and Plants	4		F,S,SU
MATH 151	Mathematical Algorithms in Matlab I	1	MATH160	F,S
MATH 229	Matrices & Linear Equations	2	MATH160	F,S
MATH 235	Introduction to Mathematical Reasoning	2	MATH161	S
MATH 301	Introduction to Combinatorial Theory	3	MATH161	F,S,SU
MATH 317	Advanced Calculus of One Variable	3	MATH161; CS220	F,S,SU
MATH 331	Introduction to Mathematical Modeling	3	DSCI369 or concurrent registration or MATH369 or concurrent registration; MATH161	F

**Electrical Engineering: Aerospace Concentration  
Science/Math/Engineering (SME) Electives  
Degree Total: 7 credits**

Course Number	Course Title	Credits	Prerequisites	Terms
MATH 332	Partial Differential Equations	3	MATH340 or MATH345	S
MATH 360	Mathematics of Information Security	3	MATH161; CS220	F
MATH 366	Introduction to Abstract Algebra	3	MATH161	F,S,SU
MATH 369 or DSCI 369	Linear Algebra I or Linear Algebra for Data Science	3-4	MATH161 or MATH159 or MATH160 or MATH161	F,S,SU or F,S
MATH380A2	Numerical Analysis for Linear Systems	3	CS150B or CS152 or CS162 or CS164 or CS165 or CS220; MATH261; MATH229 or MATH369	F
MECH 200A <sup>1</sup>	Introduction to Manufacturing Processes	2	MECH201 or MECH210	F,S
MECH 200B <sup>1</sup>	Introduction to Manufacturing Processes Lab	1	MECH200A or concurrent registration	F,S
MECH 201 <sup>1</sup> or MECH 210 <sup>1</sup>	Engineering Design 1 or Engineering Design --3D Modeling and Printing	2 2	MECH105 or None	F,S F,S
MECH 237 or MECH 339	Introduction to Thermal Science or Thermodynamics I for Mechanical Engineers	3-4	MATH160; PH141 or MATH261; PH141	F,S
MIP 300	General Microbiology	3	BZ110 or BZ120 or LIFE102; CHEM241 or concurrent registration or CHEM245 or concurrent registration or CHEM341 or concurrent registration or CHEM345 or concurrent registration	F,S,SU
PH 314	Introduction to Modern Physics	4	PH142; MATH261 or concurrent registration	F,S
PH 341	Mechanics	4	MATH340 or MATH345; PH141	F
PH 353	Optics & Waves	4	MATH261; PH142	F
PSY 253	Human Factors & Engineering Psychology	3		SU
STAT 158	Introduction to R Programming	1		S,SU
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.

<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 6 credits of Independent Study may apply towards total Electrical Engineering degree requirements. This includes credits awarded for ECE395 and ECE495 combined.

**Courses used to fulfill major and concentration requirements will not be counted as Science, Math and Engineering Elective credits.**