

**Biomedical Engineering and Electrical Engineering with Lasers and Optics**  
**Curriculum Checksheet - Effective Fall 2025 And After**

Name: \_\_\_\_\_

Program Total Credits = 159

COURSE	NAME (PREREQS (";" DENOTES "AND"))	TERM	CR	COURSE	NAME (PREREQS (";" DENOTES "AND"))	TERM	CR
<b>1st Year Fall</b>				<b>1st Year Spring</b>			
CHEM 111 or CHEM 120	General Chemistry I (MATH 118 or 127 or 141 or 155 or 160) OR Foundations of Modern Chemistry (MATH 118 or MATH 127 or MATH 155 or MATH 160)	F, S, SS	4	CO 150	College Composition (CO 130 or placement by ACT or SAT or DSP Survey or Challenge Exam)	F, S, SS	3
CHEM 112 or CHEM 121	General Chemistry Lab I (CHEM 111/conc or CHEM 117/conc) OR Foundations of Modern Chemistry Lab (CHEM 120/conc)	F, S, SS	1	ENGR 114	Engineering for Grand Challenges (ENGR 111 or MECH 104A or CBE 104A or CIVE 182A)	F, S	3
CS 150B <sup>7</sup>	Culture and Coding: Python (no prereqs) <i>See footnote for alternative options</i>	F, S	3	MATH 161	Calc for Physical Scientists II ((MATH 124 or 127); (MATH 159 or 160))	F, S, SS	4
ENGR 111	Fundamentals of Engineering	F, S	3	PH 141	Physics for Scientists and Engineers I (MATH 159/conc or MATH 160/conc)	F, S, SS	5
MATH 160	Calculus for Physical Scientists I (MATH 124*; (MATH 126* or 127**))	F, S, SS	4				
	<b>Total</b>		<b>15</b>				<b>Total</b> 15
<b>2nd Year Fall</b>				<b>2nd Year Spring</b>			
BIOM 200	Fundamentals of Biomedical Engineering (LIFE 102/conc; MATH 160)	F	2	ECE 206	Analog Circuits II (ECE 103 or ECE 205; MATH 161)	S, SS	3
ECE 205	Analog Circuits I (ENGR 114/conc or ENGR 123/conc; MATH 160)	F, S	2	ECE 232	Introduction to Project Practices (ECE 202/conc or ECE 395B/conc or ECE 495B/conc)	F, S	1
ECE 252	Intro to Digital Circuits (ENGR 114/conc or ENGR 123/conc)	F, S	3	ECE/STAT 303	Introduction to Communications Principles (MATH 261; MATH 340/conc)	S	3
LIFE 102	Attributes of Living Systems	F, S, SS	4	MATH 340	Intro to ordinary Differential Equations (MATH 261)	F, S, SS	4
MATH 261	Calculus for Physical Scientists III (MATH 161)	F, S, SS	4	PH 142	Physics for Scientists and Engineers II (PH 141; MATH 161 /conc)	F, S	5
	<b>Total</b>		<b>15</b>				<b>Total</b> 16
<b>3rd Year Fall</b>				<b>3rd Year Spring</b>			
CS 164 <sup>7</sup>	CS1- Computational Thinking with Java (CS 150B* or CS 152* or CS 163) <i>See footnote for alternative options</i>	F, S	4	BIOM 300	Problem-Based Learning BME Lab (BIOM 200 or (CBE 205; MECH 262/conc); (MATH 340 or 345))	S	4
ECE 311	Linear Systems Analysis (ECE 202; MATH 340; ECE 331/conc; ECE 341/conc)	F	3	ECE 332	Electronics Principles II (ECE 331)	S	4
ECE 331	Electronics Principles I (MATH 340; PH 142; ECE 202; ECE 311/conc; ECE 341/conc)	F	4	ECE 342	Electromagnetic Fields and Devices II (ECE 341)	S	3
ECE 341	Electromagnetics Fields and Devices I (MATH 340; PH 142; ECE 202; ECE 311/conc; ECE 331/conc)	F	3	PH 314	Intro to Modern Physics (PH 142; (MATH 261/conc or MATH 272/conc))	S	4
CO 301B or JTC 300	CO 301B: Writing in Disciplines: Science JTC 300: Strategic Writing & Communication (CO 150 or HONR 193 for both)	F, S, SS	3				
	<b>Total</b>		<b>17</b>				<b>Total</b> 15
<b>4th Year Fall</b>				<b>4th Year Spring</b>			
BMS 300	Principles of Human Physiology ((BZ 101 or 110 or LIFE 102); (CHEM 103 or 107 or 111))	F, S, SS	4	BIOM 431	Biomedical Signal and Image Processing (ECE/STAT 303; ECE 311; PH 142)	S	3
CHEM 113	General Chemistry II ((CHEM 107 or 111 or 117); (MATH 124 or 127 or 141/conc or 155/conc or 160/conc or 161/conc or 229/conc or 261/conc))	F, S, SS	3	CHEM 245	Fundamentals of organic Chemistry (CHEM 107 or 113)	F, S, SS	4
ECE 404	Experiments in Optical Electronics (ECE 441/conc)	F	2	ECE 457	Fourier Optics (ECE 311; ECE 342)	S	3
ECE 441	Optical Electronics (ECE 340 or 342)	F	3	MECH 262	Engineering Mechanics (MATH 161; PH 141)	S	4
PH 353	Optics and Waves (MATH 261; PH 142)	F	4	ECE-TE	ECE Technical Elective _____		3
	<b>Total</b>		<b>16</b>				<b>Total</b> 17
<b>5th Year Fall</b>				<b>5th Year Spring</b>			
BIOM 486A	Biomedical Design Practicum: Capstone Design I (BIOM 300; BIOM 431; ECE 311; ECE 332; ECE 342)	F	4	BIOM 486B	Biomedical Design Practicum: Capstone Design II (BIOM 486A; PH 353)	S	4
MECH 339	Thermodynamics 1 (MATH 261; PH 141)	F, S	3	ECE-TE	ECE Technical Elective _____		3
PH 451	Intro Quantum Mechanics I (PH 314; (MATH 272 or 340 or 345))	F	3	BME BE	BME Broad Elective	F, S, SS	3
AUCC	_____	F, S, SS	3	AUCC	_____	F, S, SS	3
AUCC	_____	F, S, SS	3	AUCC	_____	F, S, SS	3
	<b>Total</b>		<b>16</b>				<b>Total</b> 16

All course prerequisites for required undergraduate ECE courses must be completed with a C or better

Please note that curricula can change; be sure to check DARS/Degree Audit and with your advisors regularly to ensure you are on track.

<sup>1</sup> CS 150B + CS 164: Students may also choose one of the following:

1)Arts/Humanities AUCC + CS 152 + CS162

<b>AUCCs- Additional All University Core Courses (click here for list)</b>
3 credits - 1C Diversity, Equity, and Inclusion:
6 credits - 3B Arts and Humanities: _____
3 credits - 3C Social/Behavioral Science:
3 credits - 3D Historical Perspective:

<b>Key:</b>
/conc = may be taken concurrently Term: F = Fall, S = Spring, SS = Summer Session
Grey indicates Biomedical Engineering courses
Light green indicates labs
Red indicates time-consuming/difficult courses
Must have at least a "C" in BOLDED courses
BOLDED and * = Must have at least a "B" in courses

Honors Track 1 Curriculum Checksheet - Effective Fall 2025 And After Program Total Credits = 163

COURSE	NAME (PREREQS (";" DENOTES "AND"))	TERM	CR	COURSE	NAME (PREREQS (";" DENOTES "AND"))	TERM	CR
<b>1st Year Fall</b>				<b>1st Year Spring</b>			
CHEM 111 or CHEM 120	General Chemistry I (MATH 118 or 127 or 141 or 155 or 160) OR Foundations of Modern Chemistry (MATH 118 or MATH 127 or MATH 155 or MATH 160)	F, S, SS	4	CS 150B <sup>1</sup>	Culture and Coding: Python (no prereqs) <i>See footnote for alternative options</i>	F, S	3
CHEM 112 or CHEM 121	General Chemistry Lab I (CHEM 111/conc or CHEM 117/conc) OR Foundations of Modern Chemistry Lab (CHEM 120/conc)	F, S, SS	1	ENGR 114	Engineering for Grand Challenges (ENGR 111 or MECH 104A or CBE 104A or CIVE 182A)	F, S	3
HONR 192	Honors First Year Seminar	F, S	4	HONR 193	Honors Seminar (HONR 192)	F, S	3
ENGR 111	Fundamentals of Engineering	F, S	3	MATH 161	Calc for Physical Scientists II ((MATH 124 or 127); (MATH 159 or 160))	F, S, SS	4
MATH 160	Calculus for Physical Scientists I (MATH 124*; (MATH 126* or 127*))	F, S, SS	4	PH 141	Physics for Scientists and Engineers I (MATH 159/conc or MATH 160/conc)	F, S, SS	5
<b>Total</b>				<b>Total</b>			
<b>16</b>				<b>18</b>			
<b>2nd Year Fall</b>				<b>2nd Year Spring</b>			
BIOM 200	Fundamentals of Biomedical Engineering (LIFE 102/conc; MATH 160)	F	2	ECE 206	Analog Circuits II (ECE 103 or ECE 205; MATH 161)	S, SS	3
ECE 205	Analog Circuits I (ENGR 114/conc or ENGR 123/conc; MATH 160)	F, S	2	ECE 232	Introduction to Project Practices (ECE 202/conc or ECE 395B/conc or ECE 495B/conc)	F, S	1
ECE 252	Intro to Digital Circuits (ENGR 114/conc or ENGR 123/conc)	F, S	3	ECE/STAT 303	Introduction to Communications Principles (MATH 261; MATH 340/conc)	S	3
HONR 292	Honors Seminar (HONR 192; 193) *HONR 292B is recommended to fulfill AUCC 3B	F, S	3	MATH 340	Intro to ordinary Differential Equations (MATH 261)	F, S, SS	4
LIFE 102	Attributes of Living Systems	F, S, SS	4	PH 142	Physics for Scientists and Engineers II (PH 141; MATH 161 /conc)	F, S	5
MATH 261	Calculus for Physical Scientists III (MATH 161)	F, S, SS	4				
<b>Total</b>				<b>Total</b>			
<b>18</b>				<b>16</b>			
<b>3rd Year Fall</b>				<b>3rd Year Spring</b>			
CS 164 <sup>1</sup>	CS1- Computational Thinking with Java (CS 150B* or CS 152* or CS 163) <i>See footnote for alternative options</i>	F, S	4	BIOM 300	Problem-Based Learning BME Lab (BIOM 200 or (CBE 205; MECH 262/conc); (MATH 340 or 345))	S	4
ECE 311	Linear Systems Analysis (ECE 202; MATH 340; ECE 331/conc; ECE 341/conc)	F	3	ECE 332	Electronics Principles II (ECE 331)	S	4
ECE 331	Electronics Principles I (MATH 340; PH 142; ECE 202; ECE 311/conc; ECE 341/conc)	F	4	ECE 342	Electromagnetic Fields and Devices II (ECE 341)	S	3
ECE 341	Electromagnetics Fields and Devices I (MATH 340; PH 142; ECE 202; ECE 311/conc; ECE 331/conc)	F	3	PH 314	Intro to Modern Physics (PH 142; (MATH 261/conc or MATH 272/conc))	S	4
CO 301B or JTC 300	CO 301B: Writing in Disciplines: Science JTC 300: Strategic Writing & Communication (CO 150 or HONR 193 for both)	F, S, SS	3				
<b>Total</b>				<b>Total</b>			
<b>17</b>				<b>15</b>			
<b>4th Year Fall</b>				<b>4th Year Spring</b>			
BMS 300	Principles of Human Physiology ((BZ 101 or 110 or LIFE 102); (CHEM 103 or 107 or 111))	F, S, SS	4	BIOM 431	Biomedical Signal and Image Processing (ECE/STAT 303; ECE 311; PH 142)	S	3
CHEM 113	General Chemistry II ((CHEM 107 or 111 or 117); (MATH 124 or 127 or 141/conc or 155/conc or 160/conc or 161/conc or 229/conc or 261/conc))	F, S, SS	3	CHEM 245	Fundamentals of organic Chemistry (CHEM 107 or 113)	F, S, SS	4
ECE 404	Experiments in Optical Electronics (ECE 441/conc)	F	2	ECE 457	Fourier Optics (ECE 311; ECE 342)	S	3
ECE 441	Optical Electronics (ECE 340 or 342)	F	3	MECH 262	Engineering Mechanics (MATH 161; PH 141)	S	4
PH 353	Optics and Waves (MATH 261; PH 142)	F	4	ECE-TE	ECE Technical Elective _____		3
<b>Total</b>				<b>Total</b>			
<b>16</b>				<b>17</b>			
<b>5th Year Fall</b>				<b>5th Year Spring</b>			
BIOM 486A	Biomedical Design Practicum: Capstone Design I (BIOM 300; BIOM 431; ECE 311; ECE 332; ECE 342)	F	4	BIOM 486B	Biomedical Design Practicum: Capstone Design II (BIOM 486A; PH 353)	S	4
HONR 392	Honors Seminar (HONR 193)	F, S	3	HONR 492	Honors Senior Seminar (HONR 392)	F, S	3
HONR 399	Pre-Thesis - Honors	F, S	1	HONR 499	Senior Honors Thesis (HONR 399)	F, S, SS	3
MECH 339	Thermodynamics 1 (MATH 261; PH 141)	F, S	3	ECE-TE	ECE Technical Elective _____		3
PH 451	Intro Quantum Mechanics I (PH 314; (MATH 272 or 340 or 345))	F	3	BME BE	BME Broad Elective	F, S, SS	3
<b>Total</b>				<b>Total</b>			
<b>14</b>				<b>16</b>			

All course prerequisites for required undergraduate ECE courses must be completed with a C or better

Please note that curricula can change; be sure to check DARS/Degree Audit and with your advisors regularly to ensure you are on track.

<sup>1</sup> CS 150B + CS 164: Students may also choose one of the following:

- 1)Arts/Humanities AUCC + CS 152 + CS162

Track 1 Honors Program Required Courses in BLUE:
* HONR 192, 193, 292 A, B, or C, 392, 399, 492, 499
* One 200 or 300 level honors course in major (3 credits)
* One 300 or 400 level honors course in major (3 credits)
Reach out to your Honors advisor for Honors course offerings

Key:
/conc = may be taken concurrently Term: F = Fall, S = Spring, SS = Summer Session
Grey indicates Biomedical Engineering courses
Light green indicates labs
Red indicates time-consuming/difficult courses
Must have at least a "C" in BOLDED courses
BOLDED and * = Must have at least a "B" in courses

**Honors Track 2 Curriculum Checksheet - Effective Fall 2025 And After** Program Total Credits = 166

COURSE	NAME (PREREQS (";" DENOTES "AND"))	TERM	CR	COURSE	NAME (PREREQS (";" DENOTES "AND"))	TERM	CR	
<b>1st Year Fall</b>				<b>1st Year Spring</b>				
CHEM 111 or CHEM 120	General Chemistry I (MATH 118 or 127 or 141 or 155 or 160) OR Foundations of Modern Chemistry (MATH 118 or MATH 127 or MATH 155 or MATH 160)	F, S, SS	4	CO 150	College Composition (CO 130 or placement by ACT or SAT or DSP Survey or Challenge Exam)	F, S, SS	3	
CHEM 112 or CHEM 121	General Chemistry Lab I (CHEM 111/conc or CHEM 117/conc) OR Foundations of Modern Chemistry Lab (CHEM 120/conc)	F, S, SS	1	CS 150B <sup>†</sup>	Culture and Coding: Python (no prereqs) <i>See footnote for alternative options</i>	F, S	3	
HONR 192	Honors First Year Seminar	F, S	4	ENGR 114	Engineering for Grand Challenges (ENGR 111 or MECH 104A or CBE 104A or CIVE 182A)	F, S	3	
ENGR 111	Fundamentals of Engineering	F, S	3	MATH 161	Calc for Physical Scientists II ((MATH 124 or 127); (MATH 159 or 160))	F, S, SS	4	
MATH 160	Calculus for Physical Scientists I (MATH 124*; (MATH 126* or 127*))	F, S, SS	4	PH 141	Physics for Scientists and Engineers I (MATH 159/conc or MATH 160/conc)	F, S, SS	5	
Total				16	Total			
<b>2nd Year Fall</b>				<b>2nd Year Spring</b>				
BIOM 200	Fundamentals of Biomedical Engineering (LIFE 102/conc; MATH 160)	F	2	ECE 206	Analog Circuits II (ECE 103 or ECE 205; MATH 161)	S, SS	3	
ECE 205	Analog Circuits I (ENGR 114/conc or ENGR 123/conc; MATH 160)	F, S	2	ECE 232	Introduction to Project Practices (ECE 202/conc or ECE 395B/conc or ECE 495B/conc)	F, S	1	
ECE 252	Intro to Digital Circuits (ENGR 114/conc or ENGR 123/conc)	F, S	3	ECE/STAT 303	Introduction to Communications Principles (MATH 261; MATH 340/conc)	S	3	
HONR 292 A, B, or C	Honors Seminar (HONR 192; 193) *HONR 292B is recommended to fulfill AUCC 3B	F, S	3	MATH 340	Intro to ordinary Differential Equations (MATH 261)	F, S, SS	4	
LIFE 102	Attributes of Living Systems	F, S, SS	4	PH 142	Physics for Scientists and Engineers II (PH 141; MATH 161 /conc)	F, S	5	
MATH 261	Calculus for Physical Scientists III (MATH 161)	F, S, SS	4					
Total				18	Total			
<b>3rd Year Fall</b>				<b>3rd Year Spring</b>				
CS 164 <sup>†</sup>	CS1- Computational Thinking with Java (CS 150B* or CS 152* or CS 163) <i>See footnote for alternative options</i>	F, S	4	BIOM 300	Problem-Based Learning BME Lab (BIOM 200 or (CBE 205; MECH 262/conc); (MATH 340 or 345))	S	4	
ECE 311	Linear Systems Analysis (ECE 202; MATH 340; ECE 331/conc; ECE 341/conc)	F	3	ECE 332	Electronics Principles II (ECE 331)	S	4	
ECE 331	Electronics Principles I (MATH 340; PH 142; ECE 202; ECE 311/conc; ECE 341/conc)	F	4	ECE 342	Electromagnetic Fields and Devices II (ECE 341)	S	3	
ECE 341	Electromagnetics Fields and Devices I (MATH 340; PH 142; ECE 202; ECE 311/conc; ECE 331/conc)	F	3	PH 314	Intro to Modern Physics (PH 142; (MATH 261/conc or MATH 272/conc))	S	4	
CO 301B or JTC 300	CO 301B: Writing in Disciplines: Science JTC 300: Strategic Writing & Communication (CO 150 or HONR 193 for both)	F, S, SS	3					
Total				17	Total			
<b>4th Year Fall</b>				<b>4th Year Spring</b>				
BMS 300	Principles of Human Physiology ((BZ 101 or 110 or LIFE 102); (CHEM 103 or 107 or 111))	F, S, SS	4	BIOM 431	Biomedical Signal and Image Processing (ECE/STAT 303; ECE 311; PH 142)	S	3	
CHEM 113	General Chemistry II ((CHEM 107 or 111 or 117); (MATH 124 or 127 or 141/conc or 155/conc or 160/conc or 161/conc or 229/conc or 261/conc))	F, S, SS	3	CHEM 245	Fundamentals of organic Chemistry (CHEM 107 or 113)	F, S, SS	4	
ECE 404	Experiments in Optical Electronics (ECE 441/conc)	F	2	ECE 457	Fourier Optics (ECE 311; ECE 342)	S	3	
ECE 441	Optical Electronics (ECE 340 or 342)	F	3	MECH 262	Engineering Mechanics (MATH 161; PH 141)	S	4	
PH 353	Optics and Waves (MATH 261; PH 142)	F	4	ECE-TE	ECE Technical Elective _____		3	
Total				16	Total			
<b>5th Year Fall</b>				<b>5th Year Spring</b>				
BIOM 486A	Biomedical Design Practicum: Capstone Design I (BIOM 300; BIOM 431; ECE 311; ECE 332; ECE 342)	F	4	BIOM 486B	Biomedical Design Practicum: Capstone Design II (BIOM 486A; PH 353)	S	4	
HONR 399	Pre-Thesis - Honors	F, S	1	HONR 499	Senior Honors Thesis (HONR 399)	F, S, SS	3	
MECH 339	Thermodynamics I (MATH 261; PH 141)	F, S	3	ECE-TE	ECE Technical Elective _____		3	
PH 451	Intro Quantum Mechanics I (PH 314; (MATH 272 or 340 or 345))	F	3	BME BE	BME Broad Elective	F, S, SS	3	
AUCC	_____	F, S, SS	3	AUCC	_____	F, S, SS	3	
AUCC	_____	F, S, SS	3					
Total				17	Total			

All course prerequisites for required undergraduate ECE courses must be completed with a C or better  
**Please note that curricula can change; be sure to check DARS/Degree Audit and with your advisors regularly to ensure you are on track.**

<sup>†</sup> CS 150B + CS 164: Students may also choose one of the following:  
 1) Arts/Humanities AUCC + CS 152 + CS162

Additional Requirements for Honors Track 2:	
200 Level Honors Option in Major (3 cr):	_____
300-400 Level Honors Option in Major (12 cr) :	_____
3 credits - 1C Diversity, Equity, Inclusion:	_____
6 credits - 3B Arts and Humanities: CS 150B	_____
3 credits - 3C Social/Behavioral Science:	_____
3 credits - 3D Historical Perspective:	_____

**Key:**  
 /conc = may be taken concurrently Term: F = Fall, S = Spring, SS = Summer Session  
 Grey indicates Biomedical Engineering courses  
 Light green indicates labs  
 Red indicates time-consuming/difficult courses  
 Must have at least a "C" in BOLDED courses  
 BOLDED and \* = Must have at least a "B" in courses