

<b>Mathematics (24-25cr)</b>	
◆ <b>MATH 124, 125, 126 - Calculus with Analytical Geometry I, II, III (15cr)</b>	<input type="checkbox"/>
MATH 307 - Introduction to Differential Equations (3cr) [pr: MATH 125]	<input type="checkbox"/>
MATH 308 - Matrix Algebra with Applications (3cr) [pr: MATH 126]	<input type="checkbox"/>
INDE 315 - Probability and Statistics for Engineers (3cr) [pr: MATH 307] <u>OR</u> STAT 390 – Statistical Methods in Engineering and Science (4cr) [pr: MATH 126]	<input type="checkbox"/>
<b>Sciences (44cr)</b>	
◆ <b>CHEM 142, 152, 162 - General Chemistry (15cr)</b> (CHEM 162 must be completed with a 2.5 grade or above)	<input type="checkbox"/>
CHEM 237 - Organic Chemistry (4cr) [pr: CHEM 162] OR CHEM 223 - Organic Chemistry Short Program (4cr) [pr: CHEM 152]	<input type="checkbox"/>
PHYS 121 - Mechanics (5cr) [pr: MATH 124]	<input type="checkbox"/>
PHYS 122 - Electromagnetism (5cr) [pr: MATH 125]	<input type="checkbox"/>
BIOL 180 - Introductory Biology (5cr)	<input type="checkbox"/>
BIOL 200 - Introductory Biology (5cr) [pr: CHEM 152]	<input type="checkbox"/>
BIOL 220 - Introductory Biology (5cr)	<input type="checkbox"/>
<b>Engineering General Education Requirements (29-32cr)</b>	
<i>Written and Oral Communication (5cr):</i>	
◆ <b>English Composition (5cr)</b>	<input type="checkbox"/>
<i>Areas of Knowledge:</i>	
Visual, Literary & Performing Arts-VLPA (10cr)	<input type="checkbox"/>
Individuals & Society - I&S (10cr)	<input type="checkbox"/>
VLPA or I&S (4cr)	<input type="checkbox"/>
Diversity-DIV (3cr) - (may overlap with VLPA/I&S)	<input type="checkbox"/>

<b>Engineering Fundamentals (4-5cr)</b>	
AMATH 301 - Beginning Scientific Computing (4cr) [pr: MATH 125] OR CSE 142 - Computer Programming I (4cr) + BIOEN 498	<input type="checkbox"/>
<b>Departmental Core (44-48cr)</b>	
BIOEN 215 - Bioengineering Problem Solving (3cr)	<input type="checkbox"/>
BIOEN 315 - Biochemical Molecular Engineering (3cr)	<input type="checkbox"/>
BIOEN 316 - Biomedical Signals and Sensors (4cr)	<input type="checkbox"/>
BIOEN 317 - Biomedical Signals and Sensors Lab (2cr)	<input type="checkbox"/>
BIOEN 325 - Biotransport I (4cr)	<input type="checkbox"/>
BIOEN 326 - Solid and Gel Mechanics (4cr)	<input type="checkbox"/>
BIOEN 327 - Fluids and Materials Laboratory (2cr)	<input type="checkbox"/>
BIOEN 335 - Biotransport II (3cr)	<input type="checkbox"/>
BIOEN 336 - BioE Systems and Control (3cr)	<input type="checkbox"/>
BIOEN 337 - Mass Transport and Systems Laboratory (2cr)	<input type="checkbox"/>
BIOEN 345 - Failure Analysis and Human Physiology (4cr)	<input type="checkbox"/>
BIOEN 400 - Fundamentals of Bioengineering Design (3cr)	<input type="checkbox"/>
BIOEN 401, 402 (11cr) - BioE Research and Design <u>OR</u> BIOEN 404, 405 (7cr) - BioE Team Design Capstone	<input type="checkbox"/>
<b>Senior Technical Electives (15cr)</b>	<input type="checkbox"/>
<b>Approved Engineering Electives (9cr)</b>	<input type="checkbox"/>
<b>Free Electives (5-11cr)</b> Additional credits to meet the 180 total required for the baccalaureate degree.	<input type="checkbox"/>
<b>Total credits required for graduation: 180cr</b>	

*Honors or accelerated sequences of math and chemistry can satisfy some of the above requirements, see department website for specifics. AMATH 351/352 are alternatives to Math 307/308.*

# BioE

**Bioengineering Sample Curriculum**  
University of Washington  
<https://bioe.washington.edu>

**Bioengineering Advising**  
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This is a sample four-year plan for ENGRUD students. It is intended to provide a framework for ENGRUD students to reference as they create their own individual academic plan.

Courses required to request placement for ENGRUD students: **MATH 124, MATH 125, MATH 126; CHEM 142, CHEM 152, CHEM 162 (OR CHEM 145, 155); 5 credits of English Composition.**

	Autumn Quarter	Cr	Winter Quarter	Cr	Spring Quarter	Cr
Freshman	◆ MATH 124 - Calculus with Analytical Geometry I	5	◆ MATH 125 - Calculus with Analytical Geometry II	5	◆ MATH 126 - Calculus with Analytical Geometry III	5
	◆ CHEM 142 - General Chemistry	5	◆ CHEM 152 - General Chemistry	5	◆ CHEM 162 - General Chemistry	5
	VLPA/I&S	5	VLPA/I&S/DIV	3-5	◆ English Composition	5
	E-FIG; ENGR 101 & GEN ST 199	2				
	<b>Qtr. Total:</b>	<b>12</b>	<b>Qtr. Total:</b>	<b>13-15</b>	<b>Qtr. Total:</b>	<b>15</b>
Sophomore	Autumn Quarter	Cr	Winter Quarter	Cr	Spring Quarter	Cr
	BIOL 180 - Introductory Biology	5	BIOL 200 - Introductory Biology	5	MATH 307 - Differential Equations	3
	PHYS 121 - Mechanics	5	PHYS 122 - Electromagnetism	5	BIOEN 315 - Biochemical & Molecular Engineering	3
	CHEM 223 or 237 - Organic Chemistry	4	AMATH 301 - Beginning Scientific Comp.	4-5	BIOEN 316 - Biomed Signals & Sensors	4
	BIOEN 215 - Intro to Bioengineering Problem Solving	3	OR CSE 142 + BIOEN 498: MatLab Fund.		BIOEN 317 - Signals & Sensors Lab	2
					VLPA/I&S	3
<b>Qtr. Total:</b>	<b>17</b>	<b>Qtr. Total:</b>	<b>14-15</b>	<b>Qtr. Total:</b>	<b>15</b>	
Junior	Autumn Quarter	Cr	Winter Quarter	Cr	Spring Quarter	Cr
	BIOEN 325 - Biotransport I	4	BIOEN 335 - Biotransport II	3	BIOEN 345 - Fail. Analysis of Human Physiology	4
	BIOEN 326 - Solid and Gel Mechanics	4	BIOEN 336 - Bioengineering Systems & Control	3	BIOEN 400 - BioE Design ENGR	3
	BIOEN 327 - Fluids and Materials Lab	2	BIOEN 337 - Mass Transport and Systems Laboratory	2	BIOEN Elective I	4
	IND E 315 - Probability Stats for Engineers	3	BIOL 220 - Introductory Biology	5	VLPA/I&S	3
	MATH 308 - Matrix Algebra	3	VLPA/I&S	3	BIOEN 401 - Capstone Proposal (Only for 402 track)	1
	<b>Qtr. Total:</b>	<b>16</b>	<b>Qtr. Total:</b>	<b>16</b>	<b>Qtr. Total:</b>	<b>15</b>
Senior	Autumn Quarter	Cr	Winter Quarter	Cr	Spring Quarter	Cr
	BIOEN 402 - Design & Research	3	BIOEN 402 - Design & Research OR BIOEN 404 - Team Design	3	BIOEN 402 - Design & Research OR BIOEN 405 - Team Design	3-4
	Engineering Elective	4	BIOEN Elective II	4	BIOEN Elective IV	4
	VLPA/I&S	5	BIOEN Elective III	3	Engineering Elective	5
	One of the following: Full-time internship (ENGR 321) Study Abroad Clinical Experience	3-15	VLPA/I&S	5		
	<b>Qtr. Total:</b>	<b>Var.</b>	<b>Qtr. Total:</b>	<b>15</b>	<b>Qtr. Total:</b>	<b>12-13</b>

◆ = Placement Requirements

Honors or accelerated sequences of math and chemistry can satisfy some of the above requirements, see department website for specifics. AMATH 351/352 are alternatives to Math 307/308.