BIOLOGICAL ENGINEERING (B.S.)

Required course work includes the university requirements (see regulation J-3 (https://catalog.uidaho.edu/general-requirements-academic-procedures/j-general-requirements-baccalaureate-degrees/)) and:

Code	Title	Hours
BE 142	Introduction to Biological Engineering	2
BE 242	Biological Engineering Analysis and Design	3
BE 361	Biotransport Processes	3
BE 441	Instrumentation and Measurements	3
BE 461	Bioprocess Engineering	3
BE 462	Electric Power and Controls	3
BE 478	Engineering Design I	3
BE 479	Engineering Design II	3
BE 491	Senior Seminar	1
BIOL 115	Cells and the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
BIOL 250	General Microbiology	3
BIOL 255	General Microbiology Lab	2
BIOL 380	Biochemistry I	4
CHEM 111	General Chemistry I [1, 2]	3
CHEM 111L	General Chemistry I Laboratory	1
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
ENGR 210	Engineering Statics [1, 2]	3
ENGR 320	Engineering Thermodynamics and Heat Transfer	3
ENGR 335	Engineering Fluid Mechanics	3
ENGR 350	Engineering Mechanics of Materials	3
ECON 201	Principles of Macroeconomics	3
or ECON 202	Principles of Microeconomics	
MATH 170	Calculus I	4
MATH 175	Calculus II	4
MATH 275	Calculus III [1, 2]	3
MATH 310	Ordinary Differential Equations	3
PHYS 211	Engineering Physics I [1, 2]	3
PHYS 211L	Laboratory Physics I	1
PHYS 212	Engineering Physics II	3
STAT 301	Probability and Statistics	3
Technical Electives		*21*
Select 12 credits from any 300 or 400 level Biological Engineering courses		
Select 9 credits from any 300 or 400 level engineering or sciences courses		
Total Hours		**110**

1

A grade of C or better is required in each of the following courses before registration is permitted in upper-division engineering courses: BE 242, CHEM 111, ENGR 210, MATH 275, and PHYS 211.

2

To graduate in this program, a grade of C or better is required in each of the following courses: BE 242, CHEM 111, ENGR 210, MATH 275, and PHYS 211.

Courses to total 128 credits for this degree

Four-Year Plan

Fall Term 1		Hours
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
ENGL 101	Writing and Rhetoric I	3
ENGR 123	First Year Engineering	2
MATH 170	Calculus I	4
Humanistic and Artistic Ways of Knowing Course		3
	Hours	**16**
Spring Term 1		
BE 142	Introduction to Biological Engineering	2
BIOL 115	Cells and the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
MATH 175	Calculus II	4
ENGL 102	Writing and Rhetoric II	3
	Hours	**18**
Fall Term 2		
BE 242	Biological Engineering Analysis and Design	3
BIOL 250	General Microbiology	3
BIOL 255	General Microbiology Lab	2
MATH 275	Calculus III	3
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
American Diversity Course		3
	Hours	**18**
Spring Term 2		
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
ENGR 210	Engineering Statics	3
MATH 310	Ordinary Differential Equations	3
ECON 201 or ECON 202	Principles of Macroeconomics or Principles of Microeconomics	3
PHYS 212	Engineering Physics II	3
	Hours	**16**
Fall Term 3		
BIOL 380	Biochemistry I	4
ENGR 335	Engineering Fluid Mechanics	3
ENGR 350	Engineering Mechanics of Materials	3
STAT 301	Probability and Statistics	3
Oral Communication Course		3
	Hours	**16**
Spring Term 3		
BE 361	Biotransport Processes	3
BE 462	Electric Power and Controls	3
ENGR 320	Engineering Thermodynamics and Heat Transfer	3
UPDV BE course, Major Elective Course		3
Humanistic and Artistic Ways of Knowing Course		3

UPDV Engineering course, Major Elective Course		3
	Hours	**18**
Fall Term 4		
BE 441	Instrumentation and Measurements	3
BE 478	Engineering Design I	3
BE 491	Senior Seminar	1
UPDV BE Elective, Major Elective Course		3
UPDV BE Elective, Major Elective Course		3
UPDV Engineering course, Major Elective Course		3
	Hours	**16**
Spring Term 4		
BE 461	Bioprocess Engineering	3
BE 479	Engineering Design II	3
Social and Behavioral Ways of Knowing Course		3
UPDV BE Elective, Major Elective Course		3
International Course		3
UPDV Engineering course, Major Elective Course		3
	Hours	**18**
	Total Hours	**136**

Five-Year Plan

Fall Term 1		**Hours**
ENGL 101	Writing and Rhetoric I	3
ENGR 123	First Year Engineering	2
MATH 143	College Algebra	3
MATH 144	Analytic Trigonometry	1
International Course		3
Oral Communication Course		3
	Hours	**15**
Spring Term 1		
BE 142	Introduction to Biological Engineering	2
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
ENGL 102	Writing and Rhetoric II	3
MATH 170	Calculus I	4
Humanistic and Artistic Ways of Knowing Course		3
	Hours	**16**
Fall Term 2		
BE 242	Biological Engineering Analysis and Design	3
BIOL 115	Cells and the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
MATH 175	Calculus II	4
	Hours	**16**
Spring Term 2		
ENGR 210	Engineering Statics	3
MATH 275	Calculus III	3
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
Humanistic and Artistic Ways of Knowing Course		3
	Hours	**13**
Fall Term 3		
BIOL 250	General Microbiology	3
BIOL 255	General Microbiology Lab	2
ENGR 350	Engineering Mechanics of Materials	3
STAT 301	Probability and Statistics	3
UPDV Engineering/Science, Major Elective Course		3
	Hours	**14**
Spring Term 3		
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
ECON 201 or ECON 202	Principles of Macroeconomics or Principles of Microeconomics	3
MATH 310	Ordinary Differential Equations	3
PHYS 212	Engineering Physics II	3
	Hours	**13**
Fall Term 4		
BIOL 380	Biochemistry I	4
ENGR 335	Engineering Fluid Mechanics	3
UPDV BE, Major Elective Course		6
	Hours	**13**
Spring Term 4		
BE 461	Bioprocess Engineering	3
BE 462	Electric Power and Controls	3
ENGR 320	Engineering Thermodynamics and Heat Transfer	3
ENGR 360	Engineering Economy	2
BE 361	Biotransport Processes	3
	Hours	**14**
Fall Term 5		
BE 441	Instrumentation and Measurements	3
BE 478	Engineering Design I	3
BE 491	Senior Seminar	1
UPDV Engineering/Science, Major Elective Course		3
American Diversity Course		3
	Hours	**13**
Spring Term 5		
BE 479	Engineering Design II	3
Social and Behavioral Ways of Knowing Course		3
UPDV BE, Major Elective Course		3
UPDV BE, Major Elective Course		3
UPDV Engineering/Science, Major Elective Course		3
	Hours	**15**
	Total Hours	**142**

The degree map is a guide for the timely completion of your curricular requirements. Your academic advisor or department may be contacted for assistance in interpreting this map. This map is not reflective of your academic history or transcript and it is not official notification of completion of degree or certificate requirements. Please contact the Registrar's Office regarding your official degree/certificate completion status.

1. Graduates will be proficient engineering problem solvers capable of identifying, formulating, and solving engineering problems by integrating their knowledge of mathematics, engineering, physics, biology, and chemistry.
2. Graduates will be effective engineers who can apply their skills to design systems, components, and processes to solve engineering problems for an ever-changing world.
3. Graduates will be effective written and verbal communicators and productive team members.
4. Graduates will have a strong professional identity with a keen awareness of their professional and ethical responsibility and they will practice lifelong learning.
5. Graduates will design for advancement and sustainability of their local, national, and global communities, protecting human health and safety and practicing environmental stewardship.