

BIOENGINEERING SAMPLE CURRICULUM

University of Washington

June 2008

FRESHMAN – AUTUMN QUARTER

MATH 124 – Calculus I	5
CHEM 142 – Gen. Chem & Lab I	5
ENGL COMP	5

QUARTER TOTAL 15

FRESHMAN – WINTER QUARTER

MATH 125 – Calculus II	5
CHEM 152 – Gen. Chem & Lab II	5
CSE 142 – Comp Programming I	4

QUARTER TOTAL 14

FRESHMAN – SPRING QUARTER

MATH 126 – Calculus III	5
CHEM 162 – Chem & Lab III	5
CSE 143 Comp Programming II	5

QUARTER TOTAL 15

SOPHOMORE – AUTUMN QUARTER

BIOL 180– Intro Biology I	5
PHYS 121 – Mechanics & Lab	5
TC 231 – Intro Tech Writing	3
MATH 307 – Differential Equations	3

QUARTER TOTAL 16

SOPHOMORE – WINTER QUARTER

BIOL 200– Intro to Biology II	5
MATH 308* – Matrix Algebra	3
PHYS 122 Elec & Lab	5
BIOEN 201 – BioE Tools	2
(Winter ONLY Prereq to BIOEN 301)	

QUARTER TOTAL 15

SOPHOMORE – SPRING QUARTER

EE 215 Fund Electrical Engr	4
PHYS 123 Waves/Optics	5
BIOEN 301 BioE Sys Analysis	4
VLPA/I&S	4

QUARTER TOTAL 17

JUNIOR – AUTUMN QUARTER

BIOEN 302 – Intro Biomed Instr	4
BIOEN 304 – Intro BioE Physio I	4
MATH/STAT 390 Prob & Stats	4
CHEM 223 or CHEM 237 – Organic Chemistry	4

QUARTER TOTAL 16

JUNIOR – WINTER QUARTER

BIOEN 303 – BioE Signal Process	4
BIOEN 305 – Intro BioE Physio II	4
CHEM E 260 – Thermodynamics	4

QUARTER TOTAL 12

JUNIOR – SPRING QUARTER

BIOEN 357 – Intro Molec BioE	4
BIOEN 481 – BioE Design Princ	4
BIOEN Sr. Elective**	3
VLPA/I&S	5

QUARTER TOTAL 16

SENIOR – AUTUMN QUARTER

BIOEN Senior Elective**	4
BIOEN 482 – BioE Capstone***	2
BIOC 405 or 440 – Intro Biochem	3
VLPA/I&S	5

QUARTER TOTAL 14

SENIOR – WINTER QUARTER

BIOEN Senior Elective**	4
BIOEN 482 - BioE Capstone***	2
VLPA/I&S	5
Approved Engr Elective**	3

QUARTER TOTAL 14

SENIOR – SPRING QUARTER

BIOEN Senior Elective**	4
BIOEN 482 – BioE Capstone***	4
VLPA/I&S	5
General Elective	3

QUARTER TOTAL 16

* Important Course Prereqs: BIOEN 201 has MATH 126 & PHYS 121 as prerequisites; CSE 142 & PHYS 122 as co-requisites. BIOEN 301 has BIOEN 201, BIOL 180, CSE 142 & PHYS 122 as prerequisites; BIOL 200 & MATH 307 as co-requisites. BIOEN 302 has EE 215 as a prerequisite; EE 215 has PHYS 122 as a prerequisite. BIOEN 357 has CHEM 223 or 237 as a recommended prerequisite. BIOEN 482 has MATH/STAT 390 as a co-requisite.

** Senior and Approved Electives should support the Bioengineering Capstone Project.

*** BIOEN 481 is a required didactic course on design and capstone principles; it also covers bioengineering in a broader social context. BIOEN 482 is the capstone project, an independent design project taken with a faculty supervisor. BIOEN 482 may be started the Summer or Autumn following BIOEN 481. Students spend between 2 – 4 quarters completing their capstone project. The schedule will be worked out with the individual faculty supervisor. BIOEN 481 and 482 carry “W” credit. For more details about capstone, contact the Academic Counselor.

Students planning on attending medical school are encouraged to meet with an advisor to discuss additional requirements.

For more information contact: Engineering Advising, 301 Loew Hall, Box 352180, Seattle, Washington 98195-2180
Phone (206) 543-1770 – email (engradv@engr.washington.edu)

OR

Bioengineering Advising, 1705 NE Pacific Street, N107, Box 355061
Phone (206) 685-2000 - email (bioeng@u.washington.edu)

BIOENGINEERING GRADUATION REQUIREMENTS
University of Washington

June 2008

See end for Early Admission Requirements.

◆ Upper-Division **Admission** Requirements.

†Pre-requisites may be in progress at the time of application.

††Contact department adviser if BIO 180 is full during fall quarter.

Mathematics [25 Credits]

- ◆ MATH 124 [5cr] Calculus with Analytic Geometry I
- ◆ MATH 125 [5cr] Calculus with Analytic Geometry II
- ◆ MATH 126 [5cr] Calculus with Analytic Geometry III
- MATH 307* [3cr] Intro to Diff. Equations [pr: MATH 125]
- MATH 308* [3cr] Matrix Algebra [pr: MATH 126]

(*AMATH 351 & 352 may replace MATH 307, 308 by dept. petition)

- MATH/STAT 390 [4cr] Probability and Statistics [pr: MATH 126]
(or IND E 315 (3cr) approved by dept. petition)

Sciences [47 Credits]

- ◆ CHEM 142 [5cr] General Chemistry with lab
- ◆ CHEM 152 [5cr] General Chemistry with lab [pr: CHEM 142]
- ◆ CHEM 162 [5cr] General Chem [pr: CHEM 152]
- CHEM 237 [4cr] Organic Chem [pr: CHEM 162]

OR

- CHEM 223 [4cr] Organic Chem-Short Program [pr: CHEM 162]

- ◆ PHYS 121 [5cr] Mechanics with lab [pr: MATH 124]
- ◆ PHYS 122† [5cr] Electro/Oscillatory with lab [pr: MATH 125]
- PHYS 123 [5cr] Waves with lab [pr: MATH 126]

- ◆ BIOL 180†† [5cr] Intro Biology [pr: CHEM 152]
- ◆ BIOL 200 [5cr] Intro Biology [pr: BIOL 180]
- BIOC 405or 440 [3-4cr] Intro Biochemistry [pr: BIOL 200 & CHEM 237]

Written and Oral Communications [8 Credits]

- ◆ ENGL COMP [5cr] English Composition
- T C 231 [3cr] Intro to Technical Writing [pr: ENGL COMP]

*Note BIOEN 481 and 482 are “W” courses

Visual, Literary & Performing Arts

Individuals & Societies [VLPA/I&S] [24 Credits]

Minimum 10 credits in VLPA (formerly Humanities) required.
Minimum 10 credits in I&S (formerly Social Sciences) required.
Additional 4 credits in either VLPA or I&S

Engineering Fundamentals..... [17 Credits]

- ◆ CSE 142† [4cr] Computer Programming I
- CSE 143 [5cr] Computer Programming II
- E E 215 [4cr] Fund. of Electrical Engineering
[pr: MATH 126 & PHYS 122]
- CHEM E 260 [4cr] Thermodynamics [pr: CHEM 142, MATH 126, PHYS 121]

Bioengineering Core Courses [38 Credits]

- ◆ BIOEN 201† [2cr] Bioengineering Tools [pr: MATH 126, PHYS 121; cr: CSE 142, PHYS 122]
- BIOEN 301 [4cr] BioE Systems Analysis [pr: BIOEN 201, BIOL 180. CSE 142, PHYS 122 ; cr: BIOL 200, MATH 307]
- BIOEN 302 [4cr] Intro Biomed Instr [pr: BIOEN 301]
- BIOEN 303 [4cr] BioE Signal Processing
- BIOEN 304 [4cr] Intro BioE Analysis of Physio I
- BIOEN 305 [4cr] Intro BioE Analysis of Physio II
[pr: prob/stat]
- BIOEN 357 [4cr] Intro Molecular BioE [pr: Organic Chem recommended]
- BIOEN 481 [4 cr] BioE Design & Capstone Fund.
- BIOEN 482 [8cr] BioE Capstone Design

Bioengineering Senior Electives [15 Credits]

See departmental information for a list of acceptable courses. Courses should focus on a thrust area.

Approved Engineering Elective.....[3 Credits]

See departmental information for a list of acceptable courses. Extra Bioengineering sr elective credit may fulfill this requirement.

Free Elective.....[3 Credits]

Total credits required for graduation..... [180]

Early Admission Requirements

1. Early Admission is an option for **AUTUMN QUARTER ONLY**.
2. Student **MUST** be enrolled at UW.
3. Math 124,125 & 126; or equivalent.
4. CHEM 142, 152, & 162.
5. 5 credits of English Composition.
6. 15 of the above 30 credits **MUST** have been completed at the University of Washington.
7. Running Start students should consult with a departmental adviser.

Notes:

- Upper admission students should apply for spring admission as a first priority.
- Early admission students should apply for fall.