

State University of New York at Binghamton
 Thomas J. Watson School of Engineering and Applied Science
BS in Bioengineering Four-Year-Program
 SUNY Application Center Curriculum Code: 1532
 (If undecided use: 0229)

FALL 2013

Engineering Design Division

(The freshman year is common to all engineering majors)

<u>Fall</u>		<u>Spring</u>	
MATH 221	Calculus I (M)	MATH 222	Calculus II (MATH 221)
CHEM 111	Chemical Principles (L)	PHYS 131	General Physics I (MATH 221)
WTSN 111	Exploring Engineering I	WTSN 112	Exploring Engineering II (J) (WTSN 111)
WTSN 103	Engineering Communications I General Education Elective ¹ (P) Body/Wellness	WTSN 104	Engineering Communications II (WTSN 103) General Education Elective ¹ (G) Body/Wellness

CONFIRMATION OF MAJOR FORM FILED IN WATSON STUDENT SERVICES

Final Three Years of Bioengineering Major

(Prerequisites in parentheses)

<u>Year 2</u>	
<u>Fall</u>	
BIOL 117	Organisms and Populations
PHYS 132	General Physics II (PHYS 131)
BE 203	Numerical Methods in Bioengineering
MATH 371	Ordinary Diff Eqns (MATH 222)
<u>Spring</u>	
BIOL 118	Cell and Molecular Biology
MATH 323	Calculus 3 (MATH 222)
BE 260	Circuits and Signals for BE (PHYS 132, MATH 371)
BE 202	Biological & Engineering Networks (BE 203)

<u>Year 3</u>	
<u>Fall</u>	
BE 316	Statics/Dynamics for BE (PHYS 131, MATH 222)
BE 303	Life in Moving Fluids (MATH 371)
BE 351	Data Acq & Analysis 1 (BE 203)
BE 340	Bioinformatics (BE 203) General Education Elective ¹ (H)
<u>Spring</u>	
BE 318	Biomechanics (BE 316)
BE 312	Heat & Mass Transfer in Bio Sys (MATH 371)
BE 352	Data Acq & Analysis 2 (BE 351) Science Elective ³ Engineering Elective ²

<u>Year 4</u>	
<u>Fall</u>	
BE 450	Senior Design I (BE 260,303,312,316,318,352)
BE 422	Biomaterials (CHEM 111, BE 312)
BE 432	Ethics in Bioengineering (coreq BE 450) Engineering Elective ² General Education Elective ¹ (A)
<u>Spring</u>	
BE 451	Senior Design II (BE 450) (J)
BE 424	Bioimaging (BE 260, BE 352)
BE 410	Complexity in Biological Systems (BE 203, MATH 371) General Education Elective ¹ (N)

*****SEE MAJOR NOTES ON BACK*****

Bioengineering

The mission of the undergraduate bioengineering program at Binghamton University is to develop future leaders in the broad field encompassed by bioengineering. Upon graduation, our students will possess the analytical and creative skills, reinforced through the development of a solid ethical foundation, necessary to achieve professional employment in the broad field of bioengineering or to pursue graduate study in bioengineering, biomedical engineering, or the sciences, as well as other disciplines such as business, law, or medicine.

*******MAJOR NOTES*******

- **WTSN 111/112 are required only for those who do their freshman year in Watson.**
- **WTSN 103/104 are required only for those who do their freshman year in Watson. Others may use any C and O (or J) Gen Ed course in place of these two courses.**
- **A minimum of 128 semester credits of coursework are required to earn a B.S. in Bioengineering, including a minimum residency requirement of 30 credits in Watson school courses.**
- **¹General Education electives may be taken in any semester, in any order.**
- **²Engineering electives allow students to tailor their program to match individual interests. Engineering electives must be taken from a list of departmentally approved engineering courses. They may be taken in any semester.**
- **³Students must take a science elective from a list of departmentally approved courses.**