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)

**Fall**
- MATH 221 Calculus I (M)
- CHEM 111 Chemical Principles (L)
- WTSN 111 Exploring Engineering I
- WTSN 103 Engineering Communications I
  General Education Elective¹ (P)
  Body/Wellness

**Spring**
- MATH 222 Calculus II (MATH 221)
- PHYS 131 General Physics I (MATH 221)
- WTSN 112 Exploring Engineering II (J) (WTSN 111)
- WTSN 104 Engineering Communications II (WTSN 103)
  General Education Elective¹ (G)
  Body/Wellness

CONFIRMATION OF MAJOR FORM FILED IN WATSON STUDENT SERVICES

Final Three Years of Bioengineering Major
(Prerequisites in parentheses)

**Year 2**

**Fall**
- 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)

**Spring**
- 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)

**Year 3**

**Fall**
- 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 Elective¹ (H)

**Spring**
- BE 318 Biomechanics (BE 316)
- BE 312 Heat & Mass Transfer in Bio Sys (MATH 371)
- BE 352 Data Acq & Analysis 2 (BE 351)
  Science Elective⁵
  Engineering Elective²

**Year 4**

**Fall**
- 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 Elective²
  General Education Elective¹ (A)

**Spring**
- 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 Elective¹ (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.

- General Education electives may be taken in any semester, in any order.

- Engineering 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.

- Students must take a science elective from a list of departmentally approved courses.

4/18/13