

NAME: _____

BIOCOMPUTATIONAL ENGINEERING

UID: _____ A.A. ___ A.S.E. ___ Post-Bac

| GENERAL EDUCATION REQUIREMENTS | | | |
|---|--------------|--|-------|
| Fundamental Studies | | | |
| Academic Writing (AW) | ENGL 101 | | 3 |
| Professional Writing (PW) @USG | ENGL 393 | | 3 |
| Oral Communication (OC) | | | 3 |
| Mathmatics (MA) | MATH 140 | | 4 |
| Analytic Reasoning (AR) | MATH 140 | | 0 |
| Distributive Studies | | | |
| History/Social Sciences (HS*) | | | 3 |
| History/Social Sciences (HS*) | | | 3 |
| Humanities (HU*) | | | 3 |
| Humanities (HU*) | | | 3 |
| Natural Sciences No Lab (NS) | PHYS 161 | | 3 |
| Natural Sciences w/Lab (NL) | PHYS 260/261 | | 4 |
| Scholarship in Practice (SP*) in major | ENES 100 | | 3 |
| Scholarship in Practice (SP*) out of major | | | 3 |
| Big Question Courses | | | |
| Big Question (SCIS*) | | | 0/3 |
| Big Question (SCIS*) | | | 0/3 |
| Diversity | | | |
| Understanding Plural Societies (UP*) | | | 0/3 |
| Understanding Plural Societies (UP*) OR Cultural Competency (CC*) | | | 0/3 |
| MAJOR REQUIREMENTS | | | |
| Basic Sciences | | | |
| CHEM 135- Chem Engr or CHEM 131+134 - Gen Chem+Princ | | | 3/3&1 |
| CHEM136 - Chemistry Lab for Engr | | | 1 |
| PHYS 161 - General Physics I (NS) | | | 0 |
| PHYS 260 and PHYS 261 - Gen Physics II & Lab (NL) | | | 0 |
| MATH 140 - Calculus I (MA/AR) | | | 0 |
| MATH 141 - Calculus II | | | 4 |
| MATH 241 - Calculus III | | | 4 |
| Engineering Sciences | | | |
| ENES 100 - Intro to Eng Design (SP) | | | 0 |
| BIOE 120 - Biology for Engr or BSCI170 - Prin of Mol & Cell Bio | | | 3 |
| BIOE 241 - Biocomputational Methods or equivalent | | | 3 |

| Major Requirements @ USG | | |
|---|--|---|
| ENBC 301 - Intro to Biocomputational Engineering | | 1 |
| ENBC 311 - Python for Data Analysis | | 3 |
| ENBC 312 - Object Oriented Programming in C++ | | 3 |
| ENBC 321 - Machine Learning for Data Analysis | | 3 |
| ENBC 322 - Algorithms | | 3 |
| ENBC 331 - Applied Linear Systems and Diff Eqs | | 3 |
| ENBC 332 - Statistics, Data Analysis, and Data Vis | | 3 |
| ENBC 341 - Biomolecular Engineering Thermo | | 3 |
| ENBC 342 - Comp Fluid Dynamics and Mass Transfer | | 3 |
| ENBC 351 - Quantitative Mol and Cell Biology | | 3 |
| ENBC 352 - Molecular Techniques Laboratory | | 2 |
| ENBC 353 - Synthetic Biology | | 3 |
| ENBC 425 - Imaging and Image Processing | | 3 |
| ENBC 431 - Finite Element Analysis | | 3 |
| ENBC 441 - Computational Systems Biology | | 3 |
| ENBC 491 - Senior Capstone Design in BCE | | 3 |
| Required Technical Electives (12 credits) ** @ USG | | |
| ENBC Technical Elective I | | 3 |
| ENBC Technical Elective II | | 3 |
| ENBC Technical Elective III | | 3 |
| ENBC Technical Elective IV | | 3 |

| Requirements for Graduation: |
|---|
| <input type="checkbox"/> Final 30 credits must be earned at UMD |
| <input type="checkbox"/> 15 of the final 30 credits must be earned at the 300-400 level |
| <input type="checkbox"/> 12 upper level major credits must be earned at UMD |
| <input type="checkbox"/> A minimum 2.00 cumulative UM GPA, and satisfactory completion of all degree requirements, is required for graduation |
| <input type="checkbox"/> Students matriculating in Fall 2012 or after must have a 2.0 minimum GPA for all degree requirements, minor requirements, and undergraduate certificate requirements |
| <i>(Major courses are defined as: departmental courses, basic sciences, engineering sciences, specified degree tracks, technical requirements/ technical electives and ENGL 393)</i> |
| <input type="checkbox"/> A minimum of 120 credits is required to earn the degree |

* May satisfy more than one requirement. See www.gened.umd.edu**See Biocomputational Engineering Advisor for electives: biocomp.umd.edu

Biocomputational Engineering Graduation Plan

Name: _____

UID: _____

| Year 1 | Fall | | |
|--|---------------------------|--------|-------|
| Current Engineering Students: https://eng.umd.edu/services/academic-policies Prospective Engineering Students: https://lep.umd.edu/ | Course | Credit | Grade |
| | MATH140 | 4 | |
| | CHEM135 | 3 | |
| | CHEM136 | 1 | |
| | ENGL101 | 3 | |
| | General Ed Requirement I | 3 | |
| | General Ed Requirement II | 3 | |
| Total | 17 | | |

| Spring | | |
|----------------------------|-----------|-------|
| Course | Credit | Grade |
| ENES100 | 3 | |
| BIOE120 | 3 | |
| MATH141 | 4 | |
| PHYS161 | 3 | |
| General Ed Requirement III | 3 | |
| | | |
| Total | 16 | |

| Year 2 | Fall | | |
|--------------|---------------------------|--------|-------|
| | Course | Credit | Grade |
| | MATH241 | 4 | |
| | BIOE241 | 3 | |
| | General Ed Requirement IV | 3 | |
| | General Ed Requirement V | 3 | |
| | | | |
| | | | |
| Total | 13 | | |

| Spring | | |
|-----------------------------|-----------|-------|
| Course | Credit | Grade |
| PHYS260 | 3 | |
| PHYS261 | 1 | |
| General Ed Requirement VI | 3 | |
| General Ed Requirement VII | 3 | |
| General Ed Requirement VIII | 3 | |
| | | |
| Total | 13 | |

| Year 3 | Fall @USG | | |
|--------------|-----------|--------|-------|
| | Course | Credit | Grade |
| | ENBC301 | 1 | |
| | ENBC311 | 3 | |
| | ENBC331 | 3 | |
| | ENBC332 | 3 | |
| | ENBC341 | 3 | |
| | ENBC351 | 3 | |
| Total | 16 | | |

| Spring @USG | | |
|-----------------|-----------|-------|
| Course | Credit | Grade |
| ENBC312 | 3 | |
| ENBC322 | 3 | |
| ENBC342 | 3 | |
| ENBC352 | 2 | |
| ENBC Elective I | 3 | |
| | | |
| Total | 14 | |

| Year 4 | Fall @USG | | |
|--------------|------------------|--------|-------|
| | Course | Credit | Grade |
| | ENBC321 | 3 | |
| | ENBC353 | 3 | |
| | ENBC431 | 3 | |
| | ENGL393 | 3 | |
| | ENBC Elective II | 3 | |
| | | | |
| Total | 15 | | |

| Spring @ USG | | |
|-------------------|-----------|-------|
| Course | Credit | Grade |
| ENBC425 | 3 | |
| ENBC441 | 3 | |
| ENBC491 | 3 | |
| ENBC Elective III | 3 | |
| ENBC Elective IV | 3 | |
| | | |
| Total | 15 | |

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