# Suggested Transfer Pathway
## Montgomery College A.S. in General Engineering to
## University of Maryland, College Park at the Universities at Shady Grove B.S. in Biocomputational Engineering

Total Credits: 63, Catalog Year: 2020-2021

**0 - 31 Credits – Montgomery College**   (Courses may be taken in any order, pending prerequisites)

| Fall Semester | Cr |
|---|---|
| ENGL102 Critical Reading, Writing and Research | 3 |
| MATH181 Calculus I † | 4 |
| CHEM 131 Principles of Chemistry I | 4 |
| ENES100 Intro to Engineering Design (GEEL) | 3 |
| Total Credits | 14 |

| Spring Semester | Cr |
|---|---|
| MATH182 Calculus II | 4 |
| CHEM 132 Principles of Chemistry II | 4 |
| PHYS161 General Physics I: Mechanics and Heat | 3 |
| ENES120 Biology for Engineers (or BIOL150) | 3 |
| Behavioral and Social Sciences Distribution * | 3 |
| Total Credits | 17 |

**32 - 63 Credits – Montgomery College**

| Fall Semester | Cr |
|---|---|
| MATH280 Multivariable Calculus | 4 |
| PHYS262 Physics II: Electricity and Magnetism | 4 |
| CHEM203 Organic Chemistry I | 5 |
| Arts Distribution | 3 |
| Total Credits | 16 |

| Spring Semester | Cr |
|---|---|
| MATH282 Differential Equations | 3 |
| PHYS263 Physics III: Waves, Optics, Modern Physics or Elective** | 4 |
| ENES240 Scientific and Engineering Computation | 3 |
| Behavioral and Social Sciences Distribution * | 3 |
| Humanities Distribution | 3 |
| Total Credits | 16 |

*Apply to graduate from Montgomery College with an Associate of Science in General Engineering*

\* BSSD courses must come from different disciplines.

\*\*PHYS263 may be substituted with either CMSC 140 or CMSC 206

† MATH 165 if needed for MATH 181

**Year Three – UMD, College Park at USG**

| Fall Semester | Cr |
|---|---|
| ENBC301 Intro to Biocomputational Engineering | 1 |
| ENBC311 Python for Data Analysis | 3 |
| ENBC331 Applied Linear Systems and Differential Equations | 3 |
| ENBC332 Statistics, Data Analysis, and Data Visualization | 3 |
| ENBC341 Biomolecular Engineering Thermodynamics | 3 |
| ENBC351 Quantitative Molecular and Cellular Biology | 3 |
| Total Credits | 16 |

| Spring Semester | Cr |
|---|---|
| ENBC312 Object Oriented Programming in C++ | 3 |
| ENBC322 Algorithms | 3 |
| ENBC342 Computational Fluid Dynamics and Mass Transfer | 3 |
| ENBC352 Molecular Techniques Laboratory | 2 |
| ENBC4xx Elective 1 | 3 |
| Total Credits | 14 |

**Year Four – UMD, College Park at USG**

| Fall Semester | Cr |
|---|---|
| ENBC321 Machine Learning for Data Analysis | 3 |
| ENBC353 Synthetic Biology | 3 |
| ENBC431 Finite Element Analysis | 3 |
| ENGL393 Technical Writing | 3 |
| ENBC4xx Elective 2 | 3 |
| Total Credits | 15 |

| Spring Semester | Cr |
|---|---|
| ENBC425 Imaging and Image Processing | 3 |
| ENBC441 Computational Systems Biology | 3 |
| ENBC491 Senior Capstone Design in Biocomputational Engineering | 3 |
| ENBC4xx Elective 3 | 3 |
| ENBC4xx Elective 4 | 3 |
| Total Credits | 15 |

# MC [A.S. in General Engineering](#) to UMD-USG B.S. in Biocomputational Engineering

Total Credits: 63, Catalog Year 2020-2021

| Name: | | Date: | | ID# | |
|---|---|---|---|---|---|
| **General Education Courses** | **COURSE** | **HRS** | **GRADE** | | |
| English Foundation (ENGL102, Critical Reading, Writing and Research) | ENGL102 | 3 | | | |
| Math Foundation (Calculus I) † | MATH181 | 4 | | | |
| **Distribution Courses** | **COURSE** | **HRS** | **GRADE** | | |
| NSND: General Physics I: Mechanics and Heat | PHYS161 | 3 | | | |
| NSLD: General Physics II: Electricity and Magnetism | PHYS262 | 4 | | | |
| Arts Distribution | | 3 | | | |
| Behavioral and Social Sciences Distribution * | | 3 | | | |
| Behavioral and Social Sciences Distribution * | | 3 | | | |
| Humanities Distribution | | 3 | | | |
| **General Education Elective** | **COURSE** | **HRS** | **GRADE** | | |
| Introduction to Engineering Design | ENES100 | 3 | | | |
| **Program Requirements** | **COURSE** | **HRS** | **GRADE** | | |
| ENGL101 (if needed for ENGL102/ENGL103, general elective if not) | | 3 | | | |
| Principles of Chemistry I | CHEM 131 | 4 | | | |
| General Physics III: Waves, Optics and Modern Physics <u>or</u> Suggested Elective** | | 4 | | | |
| Calculus II | MATH182 | 4 | | | |
| Multivariable Calculus | MATH280 | 4 | | | |
| Differential Equations | MATH282 | 3 | | | |
| Biology for Engineers | ENES 120 | 3 | | | |
| **Scientific and Engineering Computation** | ENES240 | 3 | | | |
| Principles of Chemistry II or General Chemistry for Engineers | CHEM 132 or CHEM135 | 4 | | | |
| Organic Chemistry I | CHEM 203 | 5 | | | |

**\*** BSSD courses must come from different disciplines
\*\*PHYS263 may be substituted with either CMSC 140 or CMSC 206
† MATH 165 if needed for MATH 181

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