

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
Distributive Studies			
History/Social Sciences (HS*)			3
History/Social Sciences (HS*)			3
Humanities (HU*)			3
Humanities (HU*)			3
Scholarship in Practice (SP*) out of mj			3
I-Series			
I-Series (IS*)			0/3
I-Series (IS*)			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)			3
PHYS 260 and PHYS 261 - Gen Physics II & Lab (NL)			3 & 1
MATH 140 - Calculus I (MA/AR)			4
MATH 141 - Calculus II			4
MATH 241 - Calculus III			4
MATH 246 - Differential Equations			3
Engineering Sciences			
ENES 100 - Intro to Eng Design (SP)			3
BIOE 120 - Biology for Engr or BSCI170 - Prin of Mol & Cell Bio			3
BIOE 241 - Biocomputational Methods or equivalent			3

* May satisfy more than one requirement. See www.gened.umd.edu

**See Biocomputational Engineering Advisor for electives: biocomp.umd.edu

For Degree Clearance Only	
Degree: B.S. BCE	Advisor: _____
Date: _____	Credits/GPA: _____

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

Biocomputational Engineering Four Year Academic Plan

Name: _____

UID: _____

Year 1	Fall		
Gateway requirements include: ENGL 101, CHEM 135, MATH 141, PHYS 161 and an approved Distributive Studies course. (Directly admitted freshman must successfully complete these courses and ENES 100 by 45 UM credits.)	Course	Credit	Grade
	MATH140	4	
	CHEM135	3	
	CHEM136	1	
	ENGL101	3	
	General Ed Requirement I	3	
	Total	14	

Spring		
Course	Credit	Grade
ENES100	3	
BIOE120	3	
MATH141	4	
PHYS161	3	
General Ed Requirement II	3	
Total	16	

Year 2	Fall		
	Course	Credit	Grade
	MATH241	4	
	BIOE241	3	
	General Ed Requirement III	3	
	General Ed Requirement IV	3	
	General Ed Requirement V	3	
	Total	16	

Spring		
Course	Credit	Grade
PHYS260	3	
PHYS261	1	
MATH246	3	
General Ed Requirement VI	3	
General Ed Requirement VII	3	
General Ed Requirement VIII	3	
Total	16	

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	