NAME: _____

BIOCOMPUTIONAL 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
CHEM 231 and 232 - Organic Chemistry I & Lab		
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
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:

- ☐ Final 30 credits must be earned at UMD
- ☐ 15 of the final 30 credits must be earned at the 300-400 level
- ☐ 12 upper level major credits must be earned at UMD
- ☐ A minimum 2.00 cumulative UM GPA, and satisfactory completion of all degree requirements, is required for graduation
- ☐ Students matriculating in Fall 2012 or after must have a 2.0 minimum GPA for all degree requirements, minor requirements, and undergraduate certificate requirements *(Major courses are defined as: departmental courses, basic sciences, engineering sciences, specified degree tracks, technical requirements/ technical electives and ENGL 393)*
- ☐ 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	
	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***
	CHEM231	3	
	CHEM232	1	
	MATH241	4	
	BIOE241	3	
	General Ed Requirement IV	3	
	General Ed Requirement V	3	
	Total	**17**	

Spring		
Course	***Credit***	***Grade***
PHYS260	3	
PHYS261	1	
MATH246	3	
General Ed Requirement VI	3	
General Ed Requirement VII	3	
General Ed Requirement VII	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	
	ENBC393	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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