

NAME: \_\_\_\_\_

# CHEMICAL ENGINEERING

UID: \_\_\_\_\_    A.A.    A.S.    Post-Bac

GENERAL EDUCATION REQUIREMENTS			
<b>Fundamental Studies</b>			
Academic Writing (AW)	ENGL 101		3
Professional Writing (PW)	ENGL 39X		3
Oral Communication (OC)			3
<b>Distributive Studies</b>			
History/Social Sciences (HS*)			3
History/Social Sciences (HS*)			3
Humanities (HU*)			3
Humanities (HU*)			3
Scholarship in Practice (SP*) out of major			3
<b>I-Series Courses</b>			
I-Series (IS*)			0/3
I-Series (IS*)			0/3
<b>Diversity</b>			
Understanding Plural Societies (UP*)			0/3
Understanding Plural Societies (UP*) OR Cultural Competency (CC*)			0/3
MAJOR REQUIREMENTS			
<b>Basic Sciences</b>			
CHEM 135-Chem Engr or 131 & 134 -Fund & Prin			3/3&1
CHEM 136 - Chemistry Lab for Eng			1
CHEM 231 and 232 - Organic Chemistry I & Lab			3 & 1
CHEM 241 and 242 - Organic Chemistry II & Lab			3 & 1
PHYS 161 - General Physics I (NS)			3
PHYS 260 and 261 - Gen Physics II & Lab (NL)			3 & 1
PHYS 270 and 271 - Gen Physics III & Lab			3 & 1
MATH 140 - Calculus I (MA/AR)			4
MATH 141 - Calculus II			4
MATH 241 - Calculus III			4
MATH 246 - Differential Equations			3
<b>Engineering Sciences</b>			
ENES 100 - Intro to Eng Design (SP)			3

\* May satisfy more than one requirement. See [www.gened.umd.edu](http://www.gened.umd.edu)

\*\* For technical elective guidelines, see:

[www.chbe.umd.edu/undergraduate/electives](http://www.chbe.umd.edu/undergraduate/electives)

MAJOR REQUIREMENTS			
BIOE 120 - Biology for Engineers			3
CHBE 101 - Intro to Chem & Biom. Eng			3
CHBE 250 - Comp Methods Chem & Bio			3
CHBE 301 - Chem & Biomolec Thermo			3
CHBE 302 - Chem & Biomolec Thermo II			3
CHBE 333 - Comm Skills for Eng			1
CHBE 410 - Statistics & Experimental Design			3
CHBE 422 - Chem & Biomolec Trans.			3
CHBE 424 - Chem & Biomolec Trans. II			3
CHBE 426 - Chem & Biomolec Sep. Processes			3
CHBE 437 - Chem & Biomolec Eng Lab			3
CHBE 440 - Chem Kinetics & Reactor			3
CHBE 442 - Chem Eng Systems Analysis			3
CHBE 444 - Process Eng Econ & Design I			3
CHBE 446 - Process Eng Econ & Design II			3
ENMA 300 or ENMA425 or BIOE453			3
CHBE 4XX - Elective **			3
CHBE 4XX - Elective **			3
CHBE 4XX - Elective **			3
<b>Technical Requirements</b>			
BCHM 461 & BCHM 462 or BCHM463			6 or 3
CHEM 272 - Gen Bioanalytical Chem Lab			2

**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 of the final 30 credits must be upper level major coursework
- A minimum 2.00 cumulative UM GPA and satisfactory completion of all degree requirements are required for graduation
- Students matriculating after Fall 2012 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 Professional Writing (PW))
- A minimum of 120 credits is required to earn the degree

**For Degree Clearance Only**

Degree: B.S. CHBE

Advisor: \_\_\_\_\_

Date: \_\_\_\_\_

Credits/GPA: \_\_\_\_\_

# Chemical and Biomolecular Engineering Four Year Academic Plan

Name: \_\_\_\_\_

UID: \_\_\_\_\_

Year 1	Fall			Spring		
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	Course	Credit	Grade
	ENES100 (SP)	3		CHBE 101	3	
	MATH 140 (AR)	4		MATH 141	4	
	CHEM 135	3		PHYS 161 (NS)	3	
	CHEM 136	1		ENGL 101 (AW)	3	
	Humanities (HU)*	3		BIOE 120	3	
	<b>Total</b>	<b>14</b>		<b>Total</b>	<b>16</b>	

Year 2	Fall			Spring		
	Course	Credit	Grade	Course	Credit	Grade
	MATH 241	4		MATH 246	3	
	CHEM 231	3		PHYS 270 and PHYS 271	3 & 1	
	CHEM 232	1		CHEM 241	3	
	PHYS 260 and PHYS 261 (NL)	3 & 1		CHEM 242	1	
	CHBE 250	3		CHBE 302	3	
	CHBE 301	3		ORAL COMM (OC)	3	
	<b>Total</b>	<b>18</b>		<b>Total</b>	<b>17</b>	

Year 3	Fall			Spring		
	Course	Credit	Grade	Course	Credit	Grade
	CHBE 410	3		BCHM 461** or 463	3	
	CHBE 422	3		ENMA 300, 425, or BIOE 453	3	
	CHBE 440	3		CHBE 424	3	
	CHEM 272	2		CHBE 426	3	
	Professional Writing (PW)	3		CHBE 333	1	
	Scholarship in Practice (SP)*	3		Humanities (HU)*	3	
	<b>Total</b>	<b>17</b>		<b>Total</b>	<b>16</b>	

Year 4	Fall			Spring		
	Course	Credit	Grade	Course	Credit	Grade
	CHBE 437	3		CHBE 446	3	
	CHBE 442	3		Tech Elective (see advisor)**	3	
	CHBE 444	3		Tech Elective (see advisor)**	3	
	Tech Elective (see advisor)**	3		Hist & Social Sciences (HS)*	3	
	Hist & Social Sciences (HS)*	3				
	<b>Total</b>	<b>15</b>		<b>Total</b>	<b>12</b>	

\*All students must complete two Distributive Studies courses that are approved for I-series courses. The Understanding Plural Societies (UP) and Cultural Competence (CC) courses may also fulfill Distributive Studies categories.

\*\* Students selecting BCHM 461 must complete BCHM 462 as their approved outside technical elective.