

# CHEMICAL and BIOMOLECULAR ENGINEERING

## Four-Semester Transfer Sequence for UMCP

UNIVERSITY of MARYLAND			MONTGOMERY COLLEGE		
<i>Semester 1</i>					
ENES 100	Intro. to Engineering Design	3	CHEM 131	Principles of Chemistry I	4
MATH 140	Calculus I	4	ENGL 102	Critical Reading, Writing & Research	3
CHEM 135/6	Gen Chemistry for Engineers	4	ENES 100	Intro. to Engineering Design	3
	Gen. Ed. Requirements**	<u>3</u>	MATH 181	Calculus I	4
			General Education Distribution Course**		<u>3</u>
<b>Total Credits</b>		<b>14</b>	<b>Total Credits</b>		<b>17</b>
<i>Semester 2</i>					
CHBE 101	Intro to Chem & Biom. Eng.^	3	CHEM 132	Principles of Chemistry II	4
MATH 141	Calculus II	4	MATH 182	Calculus II	4
PHYS 161	Physics I	3	PHYS 161	Physics I	3
ENGL 101	Intro to Writing	3	General Education Distribution Course**		3
BIOE 120	Biology for Engineers	<u>3</u>	Gen. Ed. Humanities COMM 108 recommended**		<u>3</u>
<b>Total Credits</b>		<b>16</b>	<b>Total Credits</b>		<b>17</b>
<i>Semester 3</i>					
MATH 241	Calculus III	4	CHEM 203	Organic Chemistry I	5
CHEM 231/2	Organic Chemistry I/Lab	4	MATH 280	Multivariable Calculus	4
PHYS 260/1	Physics II/Lab	4	PHYS 262	Physics II	4
CHBE 250*	Comp. Methods in Chem.	3	ENES 120	Biology for Engineers***	<u>3</u>
CHBE 301*	Chem & Biom. Eng. Therm. I	<u>3</u>			
<b>Total Credits</b>		<b>18</b>	<b>Total Credits</b>		<b>16</b>
<i>Semester 4</i>					
MATH 246	Differential Equations	3	CHEM 204	Organic Chemistry II	5
PHYS 270/1	Physics III/Lab	4	MATH 282	Differential Equations	3
CHEM241/2	Organic Chemistry II/Lab	4	PHYS 263	Physics III	4
CHBE 302*	Chem & Biom. Eng. Therm. II	3	General Education Distribution Course**		<u>3</u>
	Gen. Ed. Requirements**	<u>3</u>			
<b>Total Credits</b>		<b>17</b>	<b>Total Credits</b>		<b>15</b>
<b>GRAND TOTAL</b>		<b>65</b>	<b>GRAND TOTAL</b>		<b>65</b>
<a href="#">UMCP BS Chemical and Biomolecular Curriculum</a>			<a href="#">MC AS Chemical Engineering Curriculum</a>		

\* CHBE 101, 250, 301, and 302 for which MC has no equivalent, must be completed after transfer or through [MTAP](#).

\*\* Follow this link for information about the 4-year programs [General Education](#) requirements at UMCP.

\*\*\* ENES 120 Biology for Engineers (3) is the MC equivalent of BIOE120.

[Maryland Transfer Advantage Program \(MTAP\)](#): Students planning transfer to UMCP should enroll in MTAP as soon as possible. Benefits include access to advising transfer advising at UMCP and tuition discounts on courses taken through MTAP at UMCP.

# CHEMICAL and BIOMOLECULAR ENGINEERING

## Suggested Five-Semester Transfer Sequence for UMCP

### Semester 1

CHEM 131	Principles of Chemistry I <sup>1</sup>	4
ENGL 101	Intro. to College Writing	3
ENES 100	Intro. to Engineering Design	3
MATH 165	Precalculus	4
<b>Total Credits</b>		<b>14</b>

### Semester 1 Curriculum Prerequisites\*

CHEM 099	Introductory Chemistry <sup>2</sup>	0
MATH 050	Foundations of Algebra <sup>3</sup>	0
MATH 098	Intro to Trigonometry <sup>3</sup>	0

### Semester 2

CHEM 132	Principles of Chemistry II <sup>1</sup>	4
ENGL 102	Crit. Reading, Writing & Res.	3
MATH 181	Calculus I	4
General Education Distribution Course		3
<b>Total Credits</b>		<b>14</b>

### Courses Usually Offered During Summer Terms\*

CHEM 131	Principles of Chemistry I	4
CHEM 132	Principles of Chemistry II	4
ENGL 102	Critical Reading, Writing & Research	3
ENES 100	Introduction to Engineering Design	3
MATH 181	Calculus I	4
MATH 182	Calculus II	4
MATH 280	Multivariable Calculus	4
MATH 282	Differential Equations	3
PHYS 161	Physics I	3

### Semester 3

MATH 182	Calculus II	4
PHYS 161	Physics I	3
ENES 120	Biology for Engineers	3
General Education Distribution Course		3
<b>Total Credits</b>		<b>13</b>

### Summer Term I

CHBE 101	Intro. Chem. & Biom. Eng.	3
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### Semester 4

CHEM 203	Organic Chemistry I	5
MATH 280	Multivariable Calculus	4
PHYS 262	Physics II	4
General Education Distribution Course		3
<b>Total Credits</b>		<b>16</b>

### Semester 5

CHEM 204	Organic Chemistry II	5
MATH 282	Differential Equations	3
PHYS 263	Physics III	4
General Education Distribution Course		3
<b>Total Credits</b>		<b>15</b>

### Advising Notes

<sup>1</sup>CHEM 131/132 may be more appropriate than CHEM 135 for students who are taking MATH 050/MA098.

<sup>2</sup>CHEM 099 or a passing score on the Chemistry placement exam is required for CHEM 131 or CHEM135.

<sup>3</sup>MATH 050 and MATH 098 or equivalents are prerequisites for MATH 165.

Students taking the American English Language Writing (AELW)/American English Language Reading (AELR) course sequence should meet with an engineering advisor to determine appropriate math, physics, and engineering course enrollments.

## GRAND TOTAL

75\*\*

\*Students may meet prerequisites for first-semester curriculum courses by either successfully completing appropriate coursework in high school or achieving qualifying scores on SAT, AP, IB, or Accuplacer assessments. Students needing to complete prerequisites to first-semester curriculum may consider taking summer term courses.

\*\*Note: ENGL 101 and MATH 165 do not transfer as part of the BS engineering degree requirements at UMCP.

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