

MATERIALS SCIENCE and 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	
ENGL 101	Intro to Writing	3		MATH 181	Calculus I	4	
ENMA 180*	Mat Sci & Eng: The Field	<u>1</u>		Gen. Ed. Humanities COMM 108 recommended**		<u>3</u>	
Total Credits		15		Total Credits		17	
<i>Semester 2</i>							
EENE 140	Intro to Prog Concepts for Eng	2		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	
	Gen. Ed. Requirements**	3		ENES 102 ⁺	Statics	3	
	Gen. Ed. Requirements**	<u>3</u>		General Education Distribution Course**		<u>3</u>	
Total Credits		15		Total Credits		17	
<i>Semester 3</i>							
PHYS 260/1	Physics II/Lab	4		CHEM 203	Organic Chemistry I	5	
MATH 241	Calculus III	4		MATH 280	Multivariable Calculus	4	
ENMA 300*	Intro to Materials Eng.	3		PHYS 262	Physics II	4	
MATH 206	Introduction to MATLAB	1		General Education Distribution Course**		<u>3</u>	
	Gen. Ed. Requirements**	<u>3</u>		Total Credits		16	
Total Credits		15					
<i>Semester 4</i>							
PHYS 270/1	Physics III/Lab	4		ENES 206	MATLAB for Engineers	1	
MATH 246	Differential Equations	3		ENES 220 ⁺	Mechanics of Materials (or ENEE140)	3	
CHEM231/2	Organic Chemistry I/Lab	4		MATH 282	Differential Equations	3	
ENMA 301*	Mat for Emerg. Technologies	3		PHYS 263	Physics III	4	
	Gen. Ed. Requirements**	<u>3</u>		General Education Distribution Course**		<u>3</u>	
Total Credits		17		Total Credits		14	
GRAND TOTAL		62		GRAND TOTAL		64	

[UMCP BS Materials Science & Engineering Curriculum](#)

[MC AS Materials Science & Engineering Curriculum](#)

* ENMA 180, ENMA 300, and ENMA 301, for which MC has no equivalents, must be completed after transfer or through [MTAP](#).

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

+ ENES 102 and ENES 220 are NOT required for the B.S. Materials Science and Engineering at UMCP. ENEE 140 or equivalent programming course IS required for B.S. at UMCP.

[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.

MATERIALS SCIENCE and ENGINEERING

Suggested Five-Semester Transfer Sequence for UMCP

Semester 1

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

Semester 2

CHEM 122	Principles of Chemistry II ¹	4
ENGL 102	Crit. Read., Writ. & Research	3
MATH 181	Calculus I	4
Gen. Ed. Humanities COMM 108		3
Total Credits		14

Semester 3

MATH 182	Calculus II	4
PHYS 161	Physics I	3
ENES 102	Statics	3
General Education Distribution Course		3
Total Credits		13

Semester 4

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

Semester 5

ENES 220	Mechanics of Materials	3
MATH 282	Differential Equations	3
PHYS 263	Physics III	4
General Education Distribution Course		3
Total Credits		13

GRAND TOTAL

70**

Semester 1 Curriculum Prerequisites*

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

Courses Usually Offered During Summer Terms*

CHEM 131	Principles of Chemistry I	4
CHEM 132	Principles of Chemistry II	4
ENGL 102	Crit. Read., Writ. & 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

Advising Notes

¹CHEM 131/132 may be more appropriate than CHEM 135 for students who are taking MATH 096/MA098.

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

³MATH 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.

*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: EN 101 and MA 180 do not transfer as part of the BS engineering degree requirements at UMCP.

[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.