BIOENGINEERING

Four-Semester Transfer Sequence for UMCP

UNIVERSITY of MARYLAND			MONTGOMERY COLLEGE		
Semester 1					
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
BIOE 120/1	Biology for Engineers w/lab*	4	MATH 181	Calculus I	4
			General Education Distribution Course**		3
Total Credits		15	Total Credits		17
Semester 2					
ENES 102	Mechanics I (Statics)	3	CHEM 132	Principles of Chemistry II	4
MATH 141	Calculus II	4	ENES 102	Statics	3
PHYS 161	Physics I	3	MATH 182	Calculus II	4
ENGL 101	Intro to Writing	3	PHYS 161	Physics I	3
	Gen. Ed. Requirements**	3	General Education Distribution Course**		3
Total Credits		16	Total Credits		17
Semester 3					
CHEM 231/2	Organic Chemistry I/Lab	4	CHEM 203	Organic Chemistry I	5
MATH 241	Calculus III	4	MATH 280	Multivariable Calculus	4
BIOE 241	Biocomputation Methods***	3	PHYS 262	Physics II	4
PHYS 260/1	Physics II/Lab	4	ENES 120	Biology for Engineers*	3
	Gen. Ed. Requirements**	3			
Total Credits		18	Total Credits		16
Semester 4					
MATH 246	Differential Equations	3	ENES 220	Mechanics of Materials****	3
BIOE 232	Bioeng. Thermodynamics	3	MATH 282	Differential Equations	3
BIOE 371	Bioengineer. Math & Stats***	3	General Education Distribution Course**		3
BSCI 2XX	Biological Science Elective I	4	Gen. Ed. Humanities COMM 108 recommended**		3
	Gen. Ed. Requirements**	3	ENES 232	Thermodynamics (or BIOL/CHEM)+	3
BIOE 221	Intro to Bioengineering Major	1			
Total Credits		17	Total Credits		15
GRAND TOTAL		**66**	**GRAND TOTAL#**		**65**

UMCP BS Bioengineering Curriculum

MC AS Bioengineering Curriculum

Students completing these courses will have four general education courses to transfer.

* ENES 120 Biology for Engineers (3) is the MC equivalent of BIOE120. BIOE121 will remain to be taken at UMCP.

** Follow this link for information about the 4-year programs General Education requirements at UMCP.

*** BIOE 121, BIOE 241, and BIOE 371 for which MC has no equivalent, must be completed after transfer or through MTAP. All 5th and 6th semester BIOE courses require BIOE 120, BIOE 121, and BIOE 241.

**** ENES 220 Mechanics of Materials is no longer required for B.S. bioengineering at UMCP. BIOL 150 is a suitable substitute as it is a prerequisite for BIOL 210 and BIOL 222 at MC and also BSCI 330 at UMCP.

+Student can take BIOL210 Microbiology (4), BIOL222 Genetics (4), or CHEM 204 Organic Chemistry II (5) as Bioengineering Technical Electives. Not required for AS degree.

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.

BIOENGINEERING

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 132	Principles of Chemistry II[1]	4
ENGL 102	Crit. Read., Writ. & Research	3
MATH 181	Calculus I	4
General Education Distribution Course		3
Total Credits		14

Semester 3

MATH 182	Calculus II	4
PHYS 161	Physics I	3
ENES 102	Statics	3
ENES 120	Biology for Engineers	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
ENES 232	Thermodynamics	3
General Education Distribution Course		3
General Education Distribution Course		3
Total Credits		15

GRAND TOTAL **72****

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
ENES 102	Statics	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

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

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

[3]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.

*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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