Oakland University Recommended Program Guide Bachelor of Science with a major in Engineering Biology Effective Date: September 2011

GENERAL EDUCATION REQUIREMENTS

Several EDOCATION REQUIREMENTS Students must complete 40 credits of general education, excluding U.S. Diversity, Capstone and Writing Intensive in the Major. Each category must be fulfilled by completing one course of at least 3 or more credits. Courses used to meet Writing, Formal Reasoning, Arts, Foreign Language and Culture, Global Perspective, Literature, Natural Science and Technology, Social Science, Western Civilization, and Knowledge Applications may not be double counted with each other. U.S. Diversity, Writing Intensive in General Education, Writing Intensive in the Major, and a Capstone may be met									
by double counting approved general education courses. Please see the Oakland University catalog for further information.									
	akland University	Mott Community College							
	WRT 160	Writing Foundations ENGL 102							
	ormal Reasoning atisfied by Maior	Formal Reasoning Satisfied by Maior							
	Arts	Arts							
AH 100, 101, 104; C 236, 334, 336, 338; S	N 173, 175; MUS 100, 131, 200, 205, 225, HA 100, 301, 302	ART 110, 111, 112, 116; FILM 249; MUS 180, 182, 183, 186, 271, 272, 273; THTR 254							
ARB, CHE, FRH, GF 176; LIN 181	Language and Culture T, JPN, LTN, SPN 114, 115, 214, 215; ALS	Foreign Language and Culture ARBC 111, 112; CHI 111, 112; FREN 151, 152, 251, 252; GERM 111, 112, 211, 212; JAPA 111, 112, 211; RUSN 111, 112; SPAN 181; 182; 281; 282							
AN 102, 200; ENG 2 MGT 110; MUS 236;	lobal Perspective 200; IS 200, 210, 220, 230, 240, 250, 260, 270; 31; REL 101, 102, 150; WRT 360	Global Perspective ANTH 200, 211; GEOG 142							
ENG 100, 105, 111, 182; REL 311	Literature 241, 250, 303, 305, 306, 312; LIT 100, 181,	Literature ENGL 220, 221, 223, 226, 227, 231, 232, 235, 240, 241, 242, 251, 252, 271							
	Science and Technology atisfied by Major	Natural Science and Technology Satisfied by Major							
AN 101, 102, 300 CC 131, 312; PSY 100, ⁻	Social Science CN 150, 200, 201, 210; HS 302; PS 100, 114, 100, 206; WGS 200	Social Science ANTH 211, 212; ECON 221, 222; PSCN 171, 275; PYSC 281; SOCY 191							
AN 300; COM 375 ; I PS 377	estern Civilization 102, 114, 115, 292; MGT 235; PHL 101, 103;	Western Civilization HIST 151, 152, 154, 155, 253; PHIL 101, 295							
ALS 374; AMS 300; , 175; ECN 315; EED 115, 292, 318, 319, 3 450; PS 100, 312; S(385; WRT 330, 364	U.S. Diversity 74, 381, 385; CIN 150; COM 330, 385; DAN 112, 341, 342; HRD 367; HS 302; HST 114, 362; MUS 200, 336, 338; NRS 280, 302, 304, 31; WHP 370; WGS 200, 300, 322, 361, 362,	U.S. Diversity Choose one of the following from a group above: ENGL 223, 235; FILM 249; HIST 154, 155, 253; MUS 273; PSCN 171; SOCY 191							
	vledge Applications atisfied by Major	Knowledge Applications Satisfied by Maior							
	Capstone Course	Capstone Course Satisfied by Major							
	Intensive in the Major	Writing Intensive in the Major							
	S	Sat	isfied by Major						
	akland University	Mott Community College							
Course	Credit	Course Title	Course	Credit	Course Title				
APM 255	4	Intro to Differential Equations with Matrix Algebra	MATH 268	5	Differential Equations and Linear Algebra				
BIO 111	4	Biology	BIOL 111	4	Fundamentals of Biology				
BIO 113	4	Biology	BIOL 125 or BIOL 126	5 <u>or</u> 4	Zoology <u>or</u> Botany				
BIO 116	1	Biology Laboratory	Completion of BIOL 11 ⁻ 116	1 and BIOL	125 <u>or</u> 126 transfers as BIO 111, 113 and				
CHM 157 and 158	4	General Chemistry I and General Chemistry II	CHEM 131 and CHEM 132	5 and 5	General Chemistry I and General Chemistry II				
CHM 201	4	Intro to Organic and Biological Chemistry	CHEM 112	4	Fundamentals of Organic and Biochemistry				
EGR 120	1	Engineering Graphics & CAD	CADD 101 <u>or</u> CADD 201	3	Parametric Modeling Fundamentals				
EGR 240	4	Intro to Electrical & Computer Engineering	ELEC 133 and ELEC 139	9	Electrical Circuits and Logical Contro Systems				
MTH 154	4	Calculus I	MATH 170	5	Analytic Geometry & Calculus I				
MTH 155	4	Calculus II	MATH 180	5	Analytic Geometry & Calculus II				
MTH 254	4	Multivariable Calculus	MATH 250	5	Multivariable Calculus				
PHY 151	4	Introductory Physics I	PHYS 287	5	General Physics I				
PHY 152	4	Introductory Physics II	PHYS 288	5	General Physics II				

¹ Students who transfer with the MACRAO agreement satisfy the university's general education requirements with the exception of a writing intensive course in the major and a capstone course. MACRAO transfer students must also either transfer in a course that is acceptable for the knowledge application requirement or take a course at Oakland University.

Complete the following courses at Oakland University.									
Course	Credit	Course Title	Course	Credit	Course Title				
BIO 321 ²	4	Physiology	BIO 325	4	Biochemistry I				
BIO 341	4	Genetics	EGR 250	4	Introduction to Thermal Engineering				
EGR 141	4	Computer Problem Solving in Engineering & Computer Science	EGB 390	3	Introduction to Engineering Biology				
EGR 280	4	Design and Analysis of Electromechanical System	STA 226	4	Applied Probability and Statistics				
EGB 490	3	Research Project/Capstone Design							
Professional Subjects: Choose one of the 5 tracks below.									
Track 1: Bioinformatics (Choose four courses including BIO 443 and CSE 461)			Track 2: Biomedical and Biophysical Engineering (Choose four courses)						
CSE 230	4	Object Oriented Computing I	PHY 325	4	Biological Physics				
CSE 361	4	Design and Analysis of Algorithms	ME 361	4	Mechanics of Material				
BIO 443	4	Functional Genomics and Bioinformatics	ME 456 <u>or</u> PHY 421	4	Energy Systems Analysis & Design <u>or</u> Thermodynamics				
CSE 345	4	Database Design and Implementation	ME 461	4	Analysis and Design of Mechanical Structures (this course requires completion of ME 361)				
CSE 461	4	Bioinformatics	ME 467	4	Optical Measurement and Quality Inspection				
Total Credits = 16	•	Total Credits = 16							
Track 3: Compu	iological (Complete the following courses)	Track 4: Electronic Devices/Signal Analysis/Bio-sensors (Complete the following)							
MTH 275	4	Linear Algebra	ECE 276	4	Circuits and Systems				
APM 405	4	Special Topics	ECE 327	4	Electronic Circuit And Devices				
BIO 482 <u>or</u> BIO 483	3	Evolutionary Biology or Community and Population Biology	PHY 405 <u>or</u> ECE 566	4	Intro to Nanotechnology <u>or</u> Micro-and Nano-Embedded Systems				
Choose one of the following courses.			PHY 325 or CHM 427	4	Biological Physics or Electrochemistry				
APM 357	4	Elements of Partial Differential Equations	ECE 384	3	Electronic Materials and Devices				
APM 433	4	Numerical Methods							
APM 434	4	Applied Numerical Methods: Matrix Methods							
APM 455	4	Intermediate Ordinary Differential Equations							
Total Credits = 15		Total Credits = 16							
	rack 5: Molecular Engineering Biology (Choose	4 courses including BIO 3	19, BIO 42	23 and BIO 441)					
PHY 325	4	Biological Physics	BIO 309	4	Biology of the Cell				
BIO 319	4	General Microbiology	BIO 323	4	Developmental Biology				
BIO 423	4	Immunology	BIO 441 <u>or</u> BIO 421	4	Microbial Biotechnology <u>or</u> Medical Microbiology				
Total Credits = 16									
Solo	ot fron ala	ative courses with coordomic advisor accietance t	a bring your total aradita t	o 120 incl	uding 22 at the 200/400 lavel				

Notes:

- Students may transfer in one-half of the 128 credits required for the baccalaureate degree.
- Major requirements will be based on the current catalog at the time of admission to Oakland University.
- Students who complete 3 credit courses at Mott Community College may be required to enroll in additional course credits to reach the required minimums for Oakland University.
- Students should consult a Mott Community College adviser to determine the requirements for the Associate of Baccalaureate Studies degree.
- For further questions, please contact the Office of Admissions (248) 370-3360 or the School of Engineering and Computer Science at (248) 370-2200.

Maximum Mott Community College credits = 65 Minimum Oakland University Credits = 65 Minimum Credits for the BS in Engineering Biology = 130

²Consult the Oakland University catalog or adviser for additional courses that will meet this requirement.