

Engineering Dual Degree Requirements

Energy Engineering & Biochemistry

University Core Curriculum			Common Engineering				
Common Core Requirements			Mathematics				
FYS	101	First Year Seminar	3	MA	106	Calculus & Analytical Geometry 1 [†]	4
FYS	102	First Year Seminar	3	MA	107	Calculus & Analytical Geometry 2	4
GHS	201-209	Global and Historical Studies	3	MA	208	Calculus & Analytical Geometry 3	4
GHS	201-209	Global and Historical Studies	3	MA	215	Linear Algebra	3
				MA	334	Differential Equations	3
General Core Requirements			Science				
TI		Text and Ideas	3	CH	105	General Chemistry 1	-
PCA		Perspectives in the Creative Arts	3	CH	106	General Chemistry 2	-
SW		The Social World (SW 220-EC) ¹	3	PH	201	Introduction to Analytical Physics 1 ⁺	5
AR		Analytical Reasoning (exempt)	3	PH	202	Introduction to Analytical Physics 2 ⁺	5
NW		The Natural World (exempt)	5				
PWB		Physical Well-Being	1				
		Core Credits	22(30)	Engineering			Credits
Additional Core Requirements				DD	190	Elementary Engineering Design	3
BCR		Butler Cultural Requirement	8 events	DD	297	MATLAB	1
ICR		Indianapolis Community Requirement	1 course	CS	142	Intro to Computer Science & Prog	3
SAC		Speaking Across the Curriculum	1 course				
WAC		Writing Across the Curriculum	1 course	Other			Credits
Liberal Arts and Science Requirements				COM	101	Rhetoric and the American Demo	3
		Foreign Language (min 6 cr 200 level or above)	6-14	TCM	250	Career Planning for Engineers	1
		Spanish, French, German, Chinese, Latin		TCM	360	Comm in Engineering Practice (WAC/SAC)	2
		Credits	28-36	ENGR	200	Engineering Internship	1
							Credits 42
Chemistry				Energy Engineering			Credits
CH	105	General Chemistry 1 [†]	5	ECON	201	Microeconomics ¹	-
CH	106	General Chemistry 2 [†]	5	PH	351	Analog Electronics (WAC)	4
CH	321	Analytical Chemistry I	5	MA	359	Probability and Statistics	3
CH	351	Organic Chemistry 1	5	ME	200	Thermodynamics	3
CH	352	Organic Chemistry 2	5	ME	272	Mechanics of Materials	3
CH	360	Modern Issues in Biochemistry	1	ME	314	Heat & Mass Transfer	3
CH	361	Biochemistry I	4	ME	482	Control Systems	3
CH	363	Biochemistry Laboratory I	2	ECE	321	Electromechanical Motion Devices	3
CH	462	Biochemistry IIA: Central Metabolism	4	ECE	495	Fundamentals of Electrical Energy	3
Biology				EEN	220	Fund of Electrochem Mat & Energy Engr	3
BI	210	Genetics – Fundamentals	4	EEN	225	Energy Engineering Lab I	1
BI	220	Cellular & Molecular Biology: Fundamenta	4	EEN	240	Basic Engineering Mechanics	4
Biology and/or Chemistry Electives			6	EEN	250	Energy Engineering Lab II	1
BI	411	Principles of Physiology		EEN	260	Sustainable Energy	3
BI	432	Plant Physiology		EEN	262	Engr Design, Ethics, & Entrepreneurship	2
BI	433	Advanced Cell Biology		EEN	310	Fluid Mechanics	3
BI	435	Molecular Genetics		EEN	325	Energy Engineering Lab III	1
BI	436	Genomics, Bioinformatics, Gene Evolution		EEN	330	Dynamic Sys Modeling & Measurements	3
BI	438	Microbiology		EEN	345	Renewable Energy Systems	3
BI	460	Cell and Molecular Neurobiology		EEN	350	Energy Engineering Lab IV	1
CH	332	Inorganic Chemistry		EEN	425	Energy Engineering Lab V	1
CH	422	Analytical Chemistry II		EEN	445	Compressible Flow & Renewable KE	3
CH	424	Instrumental Analysis Laboratory		EEN	462	Capstone Design	3
CH	431	Advanced Inorganic Chemistry		EEN	Electives		12
CH	432	Synthesis and Characterization			Tech Elective		2
CH	463	Biochemistry Laboratory II					Credits 71
CH	471	Physical Chemistry I (Quantum Mechanics)					
CH	472	Physical Chemistry II (Thermo & Kinetics)					
		Credits	50				
191 - 199	Total Credits			¹ used as equivalents for degree requirements			
				+ also required for Biochemistry major			
				† may take CH 107 Advanced General Chemistry for 6 cr			