

## Engineering Dual Degree Requirements

### Biomedical Engineering & Biochemistry

University Core Curriculum			Common Engineering		
<b>Common Core Requirements</b>			<b>Mathematics</b>		
	Credits			Credits	
FYS 101	3	First Year Seminar	MA 106	4	Calculus & Analytical Geometry 1 <sup>+</sup>
FYS 102	3	First Year Seminar	MA 107	4	Calculus & Analytical Geometry 2
GHS 201-209	3	Global and Historical Studies	MA 208	4	Calculus & Analytical Geometry 3
GHS 201-209	3	Global and Historical Studies	MA 215	3	Linear Algebra
			MA 334	3	Differential Equations
<b>General Core Requirements</b>			<b>Science</b>		
	Credits			Credits	
TI	3	Text and Ideas	CH 105	-	General Chemistry 1
PCA	3	Perspectives in the Creative Arts	CH 106	-	General Chemistry 2
SW	3	The Social World	PH 201	5	Introduction to Analytical Physics 1 <sup>+</sup>
AR	3	Analytical Reasoning (exempt)	PH 202	5	Introduction to Analytical Physics 2 <sup>+</sup>
NW	5	The Natural World (exempt)			
PWB	1	Physical Well-Being			
	Core Credits	22(30)	<b>Engineering</b>		
<b>Additional Core Requirements</b>				Credits	
BCR	8 events	Butler Cultural Requirement	DD 190	3	Elementary Engineering Design
ICR	1 course	Indianapolis Community Requirement	DD 297	1	MATLAB
SAC	1 course	Speaking Across the Curriculum	CS 142	3	Intro to Computer Science & Prog
WAC	1 course	Writing Across the Curriculum			
<b>Liberal Arts and Science Requirements</b>			<b>Other</b>		
	Credits			Credits	
Foreign Language (min 6 cr 200 level or above)	6-14	Spanish, French, German, Chinese, Latin	COM 101	3	Rhetoric and the American Demo
	Credits	28-36	TCM 250	1	Career Planning for Engineers
			TCM 360	2	Comm in Engineering Practice (WAC/SAC)
			ENGR 200	1	Engineering Internship
				Credits	42
<b>Chemistry</b>			<b>Biomedical Engineering</b>		
	Credits			Credits	
CH 105	5	General Chemistry 1 <sup>†</sup>	CH 351	-	Organic Chemistry 1
CH 106	5	General Chemistry 2 <sup>†</sup>	CH 352	-	Organic Chemistry 2
CH 321	5	Analytical Chemistry I	BI 210	-	Genetics
CH 351	5	Organic Chemistry 1	BI 220	-	Cellular and Molecular Biology
CH 352	5	Organic Chemistry 2	BI 433	-	Advanced Cell Biology
CH 360	1	Modern Issues in Biochemistry	BME 222	4	Biomeasurements
CH 361	4	Biochemistry I	BME 241	4	Biomechanics
CH 363	2	Biochemistry Laboratory I	BME 322	3	Probability & Statistics for BME
CH 462	4	Biochemistry IIA: Central Metabolism	BME 331	3	Biosignals and Systems
<b>Biology</b>			BME 334	3	Biomedical Computing
BI 210	4	Genetics – Fundamentals	BME 352	3	Cell/Tissue Behavior and Properties
BI 220	4	Cellular & Molecular Biology: Fundamenta	BME 354	1	Probs in Cell/Tissue Behavior & Prop
<b>Biology and/or Chemistry Electives</b>			BME 381	3	Implantable Materials & Biological Resp
BI 411	6	Principles of Physiology	BME 383	1	Probs in Implant Materials & Bio Resp
BI 432		Plant Physiology	BME 402	1	Senior Seminar in BME
BI 433		Advanced Cell Biology	BME 411	3	Quantitative Physiology
BI 435		Molecular Genetics	BME 442	3	Biofluid & Biosolid Mechanics
BI 436		Genomics, Bioinformatics, Gene Evolution	BME 461	3	Transport Processes in Biomedical Engr
BI 438		Microbiology	BME 491	3	Biomedical Engineering Design I
BI 460		Cell and Molecular Neurobiology	BME 492	3	Biomedical Engineering Design II
CH 332		Inorganic Chemistry	BME Gateway Elective <sup>i</sup>	3	
CH 422		Analytical Chemistry II	BME/Tech Elective <sup>i</sup>	3	
CH 424		Instrumental Analysis Laboratory	BME/Sci/Tech Electives <sup>i</sup> (*credits used toward 6 cr req)	3	
CH 431		Advanced Inorganic Chemistry		Credits	50
CH 432		Synthesis and Characterization			
CH 463		Biochemistry Laboratory II			
CH 471		Physical Chemistry I (Quantum Mechanics)			
CH 472		Physical Chemistry II (Thermo & Kinetics)			
	Credits	50			
<b>170 - 178</b>	<b>Total Credits</b>				

<sup>i</sup> BME/Sci/Tech electives must be selected in consultation with an advisor to form an appropriate Depth Area

<sup>+</sup> also required for Biochemistry major

<sup>†</sup> may take CH 107 Advanced General Chemistry for 6 cr