

# Engineering Dual Degree Requirements

## Motorsports Engineering & Biochemistry

9/19/2018

<b>University Core Curriculum</b>			<b>Common Engineering</b>			
<b>Common Core Requirements</b>			Credits	<b>Mathematics</b>		Credits
FYS 101	First Year Seminar	3	MA 106	Calculus & Analytical Geometry 1 <sup>†</sup>	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	
<b>General Core Requirements</b>			Credits	<b>Science</b>		Credits
TI	Text and Ideas (TI 244-PL) <sup>1</sup>	3	CH 105	General Chemistry 1	-	
PCA	Perspectives in the Creative Arts	3	CH 106	General Chemistry 2	-	
SW	The Social World	3	PH 201	Introduction to Analytical Physics 1 <sup>†</sup>	5	
AR	Analytical Reasoning (exempt)	3	PH 202	Introduction to Analytical Physics 2 <sup>†</sup>	5	
NW	The Natural World (exempt)	5				
PWB	Physical Well-Being	1	<b>Engineering</b>		Credits	
	Core Credits	22(30)	DD 190	Elementary Engineering Design	3	
<b>Additional Core Requirements</b>			DD 297	MATLAB	1	
BCR	Butler Cultural Requirement	8 events	CS 142	Intro to Computer Science & Prog	3	
ICR	Indianapolis Community Requirement	1 course	<b>Other</b>		Credits	
SAC	Speaking Across the Curriculum	1 course	COM 101	Rhetoric and the American Demo	3	
WAC	Writing Across the Curriculum	1 course	TCM 250	Career Planning for Engineers	1	
<b>Liberal Arts and Science Requirements</b>			TCM 360	Comm in Engineering Practice (WAC/SAC)	2	
Foreign Language (min 6 cr 200 level or above)		6-14	ENGR 200	Engineering Internship	1	
Spanish, French, German, Chinese, Latin						
	Credits	28-36		Credits	42	
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<b>Chemistry</b>			Credits	<b>Motorsports Engineering</b>		Credits
CH 105	General Chemistry 1 <sup>†</sup>	5	PHIL 120	Ethics <sup>1</sup>	-	
CH 106	General Chemistry 2 <sup>†</sup>	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 270	Basic Mechanics I	3	
CH 360	Modern Issues in Biochemistry	1	ME 272	Mechanics of Materials	3	
CH 361	Biochemistry I	4	ME 274	Basic Mechanics II	3	
CH 363	Biochemistry Laboratory I	2	ME 310	Fluid Mechanics	3	
CH 462	Biochemistry IIA: Central Metabolism	4	ME 325	Fluids Lab	1	
<b>Biology</b>			ME 344	Intro to Engineering Materials	3	
BI 210	Genetics – Fundamentals	4	ME 482	Control Systems	3	
BI 220	Cellular & Molecular Biology: Fundamentals	4	MET 338	Manufacturing Processes	4	
<b>Biology and/or Chemistry Electives</b>			6	MSTE 272	Introduction to Motorsports	3
BI 411	Principles of Physiology		MSTE 297	Modeling for Motorsports	2	
BI 432	Plant Physiology		MSTE 298	Computer Modeling & Programming	2	
BI 433	Advanced Cell Biology		MSTE 312	Business of Motorsports	3	
BI 435	Molecular Genetics		MSTE 317	Motorsports Practicum II	1	
BI 436	Genomics, Bioinformatics, Gene Evolution		MSTE 320	Motorsports Design I	3	
BI 438	Microbiology		MSTE 330	Data Acquisition in Motorsports I	2	
BI 460	Cell and Molecular Neurobiology		MSTE 331	Data Acquisition in Motorsports II	3	
CH 332	Inorganic Chemistry		MSTE 340	Dynamic Systems and Signals	3	
CH 422	Analytical Chemistry II		MSTE 350	Comp Aided Design & Analysis	3	
CH 424	Instrumental Analysis Laboratory		MSTE 414	Motorsports Design II	3	
CH 431	Advanced Inorganic Chemistry		MSTE 417	Motorsports Practicum III	1	
CH 432	Synthesis and Characterization		MSTE 426	Internal Combustion Engines	3	
CH 463	Biochemistry Laboratory II		MSTE 472	Vehicle Dynamics	3	
CH 471	Physical Chemistry I (Quantum Mechanics)		MSTE 482	Motorsports Aerodynamics	3	
CH 472	Physical Chemistry II (Thermo & Kinetics)		Tech Electives		6	
	Credits	50		Credits	77	
<b>197 - 205 Total Credits</b>						

<sup>1</sup> used as equivalents for degree requirements

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

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