Physics – Biomedical Engineering Track

3+2 Engineering Dual Degree Program Bachelor of Science (BS.PHYS(BIOM))

Core Requir	ements		Credits	Notes/Instructions
College Sem.	Quest for Meaning	CSEM 100	3	†A student may be required to take ENGL 105 and/or MATH 100 based on
Communication & Creative Expression	Writing Oral Communication Literature The Arts	ENGL 110† COMM 101 ENGL 140-149 ARTS 100-149	3 3 (3) (3)	placement exams administered prior to their first semester at King's College. ENGL 105 and MATH 100 are 3-credit courses and will count as free electives. ††The Intercultural
Citizenship	History Intercultural Global Connections	HIST 100-149 FREN/GERM/SPAN 100-level or Study Abroad ^{††} ECON 150-199; GEOG 150-199; HIST 150-199; PS 150-199; SOC 150-199	(3) (3) (3)	Competence requirement can be satisfied by taking a 100- level language class for 3 credits or participating in an approved Study Abroad experience (See college
Quantitative & Scientific Reasoning	SBM Quantitative Reasoning SBM Scientific Endeavor SBM Science in Context Human Beh. & Soc. Inst	MATH 120 [†] or higher level NSCI 100 NSCI 171-199 ECON 111, 112; GEOG 101, 102; PS 101, PSYC 101, SOC 101	- - - (3)	catalog for more information) SBM = Satisfied By King's Major requirement(s) and credit(s) listed below. (3) To satisfy the King's
Wisdom, Faith, & the Good Life	Introduction to Phil. Phil. Investigations Theology & Wisdom Theology & the Good Life	PHIL 101 PHIL 170-199 THEO 150-159 THEO 160-169	(3) (3) (3) (3)	Core requirements, a student will need to complete five (5) Core requirements at Washington University
		Total Core Credits taken at King's	24	

Foundational Mathematics, Science and				
Engineering Requirements	Credits			
PHYS 113 ^{2,CR} Physics for Science & Engineering I	3			
PHYS 113L Phys. for Sci. & Eng. I Lab	1			
PHYS 114 ^{PR} Physics for Science & Engineering II	3			
PHYS 114LPR Phys. for Sci. & Eng. II Lab	1			
CHEM 113 ² General Chemistry I	3			
CHEM 113L General Chemistry I Lab	1			
CHEM 114 ^{PR} General Chemistry II	3			
CHEM 114LPR General Chemistry II Lab	1			
MATH 129 Calculus I	4			
MATH 130 ^{PR} Calculus II	4			
MATH 231 ^{PR} Calculus III	4			
MATH 237 ^{PR} Math Methods for Physical Sciences	3			
MATH 238 ^{PR} Differential Equations	3			
ENGR 150 Engineering Seminar	2			
ENGR 250 ^{PR} System Design & Analysis	3			
ENGR 250LPR System Design & Analysis Lab	1			
ENGR 300 Programming for Science and Engineering	3			
ENGR 300L Programming for Science and Eng. Lab	1			
BIOL 213 Cell and Molecular Biology	3			
BIOL 213L Cell and Molecular Biology Lab	1			
Other Requirements				
HCE 101 Holy Cross Experience	1			
nce 101 noily cross experience	1			
Total Foundational Mathematics, Science and Engineering Requirements and Other Credits	49			

Physics Major Requirements	Credit
PHYS 231 ^{PR} Modern Physics	3
PHYS 231L ^{PR} Modern Physics Lab	1
PHYS 233 ^{PR} Electronics I	3
PHYS 233L ^{PR} Electronics I Lab	1
PHYS 241 ^{PR} Statics	3
PHYS 330 ^{PR} Classical Mech.	3
PHYS 350 ^{PR} Thermodynamics & Stat. Mechanics	3
PHYS 371 ^{PR} Electricity & Magnetism I	3
PHYS 440 ^{PR} Quantum Mechanics	3
PHYS 490 ^{PR} Senior Seminar	3
PHYS Elective*	-
Total Physics Major Credits	26
General Information	- 20

The 3+2 Physics-Biomedical Engineering Dual Degree Program is a collaboration with Washington University in St. Louis. Students will spend three years at King's College taking mathematics, science, engineering, and general education CORE courses. Eligible students will then transfer to Washington University for two years to complete engineering courses in their chosen field. Upon successful completion of the program, students will receive both a B.S. in Physics from King's College and a B.S. in Biomedical Engineering from WashU. (For more information, refer to the college catalog).

Total Credits earned at King's College = 99

Notes

^{*} PHYS Elective required for the King's degree satisfied by any junior or senior level biomedical engineering course at Washington University

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3+2 Dual Degree Engineering Program

Suggested Sequence

A suggested course sequence of degree requirements is listed below. Refer to the college catalog for course titles, descriptions, and prerequisites. Always consult your Academic Advisor when planning and scheduling your classes.

King's College						
Fall	Credits	Spring	Credit			
CHEM 113 ² Gen. Chem. I	3	CHEM 114PR Gen. Chem. II	3			
CHEM 113L Gen. Chem. I Lab	1	CHEM 114L ^{PR} Gen. Chem. II Lab	1			
PHYS 113 ^{2,CR} Physics for Scientists & Engineers I	3	PHYS 114 ^{PR} Physics for Scientists & Engineers II	3			
PHYS 113L Physics for Sci. & Eng. I Lab	1	PHYS 114LPR Physics for Sci. & Eng. II Lab	1			
MATH 129 Calculus I	4	ENGR 150 Engineering Seminar	2			
Core Course ¹	3	MATH 130 ^{PR} Calculus II	4			
HCE 101 Holy Cross Experience	1	Core Course ¹	3			
	16		17			
Fall	Credits	Spring	Cred			
PHYS 231 ^{PR} Modern Physics	3	PHYS 330 ^{PR} Classical Mech.	3			
PHYS 231LPR Modern Physics Lab	1	ENGR 250 ^{PR} System Design & Analysis	3			
MATH 231 ^{PR} Calculus III	4	ENGR 250L ^{PR} Syst. Design & Analysis Lab	1			
MATH 238 ^{PR} Differential Equations	3	MATH 237 ^{PR} Math Methods for Phys. Sci.	3			
ENGR 300 Programming for Sci. and Eng.	3	Core Course ¹	3			
ENGR 300L Prog. for Sci. and Eng. Lab	1	Core Course ¹	3			
Core Course ¹	3					
	18*		16			
Fall	Credits	Spring	Cred			
PHYS 371 ^{PR} Electricity & Magnetism I	3	PHYS 440 ^{PR} Quantum Mech.	3			
PHYS 350 ^{PR} Thermo/Stat. Mech.	3	PHYS 490 ^{PR} Senior Seminar	3			
PHYS 241 ^{PR} Statics	3	PHYS 233 ^{PR} Electronics	3			
BIOL 213 Cell and Molecular Biology	3	PHYS 233L ^{PR} Electronics I Lab	1			
BIOL 213L Cell and Molecular Biology Lab	1	Core Course ¹	3			
Core Course ¹	3	Core Course ¹	3			
	16		16			

Total Credits earned at King's College = 99

Students apply for transfer admission to Washington University in St. Louis after completion of the Fall semester of their 3rd year. Students must have satisfied King's College academic guidelines, as well as the following general criteria:

- For Admission to Washington University in St. Louis
 - o Cumulative grade-point average (GPA) of at least 3.25 on a 4.0 scale.
 - o Cumulative technical grade-point average of at least 3.25 on a 4.0 scale (all math, science and engineering courses)
 - o GPA must be maintained through Spring Semester of Year 3
 - o All grades that transfer to Washington University must be a "C" or higher
 - o At least 60 credit-hours of work that can be transferred to satisfy WashU engineering and general education degree requirements
- The specific admission criteria for each school will be confirmed by the 3+2 Program Director

Notes:

The combination of MATH 231, 237 and 238 taken at King's satisfies the WashU requirements for ESE 318 Engineering Mathematics A and ESE 319 Engineering Mathematics B

- ¹Choose one course from each of the Core Requirements listed on the reverse side.
- ² Course may satisfy both a Major and a Core requirement. CHEM 113 and PHYS 113 will satisfy the Scientific Endeavor and Science in Context Core requirements. MATH 129 will satisfy the Quantitative Reasoning Core requirement.
- PR Course has a prerequisite check college catalog.
- ^{CR} Course has a co-requisite check college catalog.