

Physics – Pre-Calculus Track

(For students who need Pre-Calculus)

Bachelor of Science (BS.PHYS)

Core Requirements			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 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 Competence requirement can be satisfied by taking a 100-level language class for 3 credits or participating in an approved Study Abroad experience. SBM = Satisfied By Major requirement(s) and credit(s) listed below.
Communication & Creative Expression	Writing	ENGL 110†	3	
	Oral Communication	COMM 101	3	
	Literature	ENGL 140-149	3	
	The Arts	ARTS 100-149	3	
Citizenship	History	HIST 100-149	3	
	Intercultural	FREN/GERM/SPAN 100-level or Study Abroad††	3	
	Global Connections	ECON 150-199; GEOG 150-199; HIST 150-199; PS 150-199; SOC 150-199	3	
Quantitative & Scientific Reasoning	SBM Quantitative Reasoning	MATH 120 ⁺ or higher level	-	
	SBM Scientific Endeavor	NSCI 100	-	
	SBM Science in Context	NSCI 171-199	-	
	Human Beh. & Soc. Inst	ECON 111, 112; GEOG 101, 102; PS 101, PSYC 101, SOC 101	3	
Wisdom, Faith, & the Good Life	Introduction to Phil.	PHIL 101	3	
	Phil. Investigations	PHIL 170-199; MSB 287	3	
	Theology & Wisdom	THEO 150-159	3	
	Theology & the Good Life	THEO 160-169	3	
Total Core Credits			39	

Major Requirements	Credits	Major Requirements	Credits	Elective ³ / Other Requirements	Credits
PHYS 113 ^{CR,PR}	3	CHEM 113	3	HCE 101 Holy Cross Exper.	1
PHYS 113L	1	CHEM 113L	1	MATH 110	3
PHYS 114 ^{PR}	3	CHEM 114 ^{PR}	3	CS 111 w/ Lab	3
PHYS 114L ^{PR}	1	CHEM 114L ^{PR}	1	Free Elective ³	3
PHYS 231 ^{PR}	3	MATH 129	4	Free Elective ³	3
PHYS 231L ^{PR}	1	MATH 130 ^{PR}	4	Free Elective ³	3
PHYS 330 ^{PR}	3	MATH 231 ^{PR}	4	Free Elective ³	3
PHYS 350 ^{PR}	3	MATH 237 ^{PR}	3		
PHYS 371 ^{PR}	3	MATH 238 ^{PR}	3		
PHYS 440 ^{PR}	3				
PHYS 490 ^{PR}	3				
PHYS Elective* ^{PR}	3				
PHYS Elective* ^{PR}	3				
PHYS Elective** ^{PR}	3				
Total Major Credits		36	Total Major Credits		26
			Total Elective³ / Other Credits		19

Total Credits Required for Graduation = 120

***Physics Electives** - In addition to the Major Sequence requirements, a Physics Major must also complete a minimum of three (3) upper-level PHYS courses numbered 231 or higher. Some elective courses have a required laboratory component. Some courses in MATH, ENGR or CHEM may be cross-listed as PHYS. Students may choose to take electives in the Fall or Spring semester, as long as the necessary Elective and Core requirements are met.

****One Physics Elective can be satisfied with 3-credits of student research.**

Physics Electives for Engineering	Physics Electives for Graduate School
PHYS 241: Statics	PHYS 250: Relativity
PHYS 242: Mechanics of Solids	PHYS 260: Num. Techniques
PHYS 233: Electronics I	PHYS 285: Astrophysics
PHYS 234: Electronics II	PHYS 320: Adv. Lab
PHYS 360: Fluid Dynamics	PHYS 372: E&M II
	PHYS 340: Optics
	PHYS 420: Particle Phys.
	PHYS 450: Atomic & Nuclear Phys

General Information:

A student must earn a minimum of 120 credit hours to be awarded the baccalaureate degree. The number of credit hours required for graduation may be higher in certain major programs or if the student elects to pursue a second major. Beyond the requirements of the Core Curriculum and of a student's chosen major program, the balances of the credit hours required for graduation are "free electives."

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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.

Fall 2020		Credits	Spring 2021		Credits
CHEM 113 General Chemistry I		3	CHEM 114 ^{PR} General Chemistry II		3
CHEM 113L General Chemistry I Lab		1	CHEM 114L ^{PR} General Chemistry II Lab		1
MATH 110 Precalculus		3	MATH 129 Calculus I		4
Core Course ¹		3	Core Course ¹		3
Core Course ¹		3	Core Course ¹		3
HCE 101 Holy Cross Experience		1			
		14			14
Summer 2021		Credits			
MATH 130 Calculus II		4			
Fall 2021		Credits	Spring 2022		Credits
PHYS 113 ^{CR,PR} Physics for Scientists & Engineers I		4	PHYS 114 ^{PR} Physics for Scientists & Engineers II		3
PHYS 113L Physics for Sci. & Eng. I Lab		1	PHYS 114L ^{PR} Physics for Sci. & Eng. II Lab		1
MATH 231 ^{PR} Calculus III		4	Core Course ¹		3
Core Course ¹		3	Core Course ¹		3
Core Course ¹		3	Core Course ¹		3
			Core Course ¹		3
		15			16
Summer 2022		Credits			
Fall 2022		Credits	Spring 2023		Credits
PHYS 231 ^{PR} Modern Physics		3	PHYS 330 ^{PR} Classical Mechanics		3
PHYS 231L ^{PR} Modern Physics Lab		1	PHYS Elective ^{**PR}		3
PHYS Elective ^{*PR}		3	MATH 237 ^{PR} Math Methods for Phys. Sciences		3
MATH 238 ^{PR} Differential Equations (CS 111 ⁴ with Lab) or Free Elective ³		3	PHYS Elective ^{*PR}		3
Core Course ¹		3	Free Elective ³		3
		16			15
Summer 2023		Credits			
Fall 2023		Credits	Spring 2024		Credits
PHYS 350 ^{PR} Thermodynamics & Stat. Mechanics		3	PHYS 440 ^{PR} Quantum Mechanics		3
PHYS 371 ^{PR} Electricity & Magnetism I		3	PHYS 490 ^{PR} Senior Seminar		3
Core Course ¹		3	PHYS Elective ^{*PR}		3
Core Course ¹		3	Core Course ¹		3
Free Elective ³		3	Free Elective ³		3
		15			15
Total Credits Required for Graduation = 120					

NOTES:

¹Choose one course from each of the Core Requirements listed on the reverse side.

²Course may satisfy both a Major and a Core requirement. MATH 129 satisfies the Quantitative Reasoning Core requirement, PHYS 113 and CHEM 113 satisfy the Scientific Endeavor and Science in Context Core requirements.

³Students may select "free electives" for personal enrichment **OR** for Minor and/or Second Major Requirements.

⁴CS 111 is recommended as a free elective but not required.

^{PR} Course has a prerequisite – check college catalog.

^{CR} Course has a co-requisite – check college catalog.