

# Chemistry – Chemical Engineering Track

## 3+2 Engineering Dual Degree Program

### Bachelor of Science (BS.CHEM(ENGR))

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. (See college catalog for more information) SBM = Satisfied By King's Major requirement(s) and credit(s) listed below. (3) To satisfy the King's Core requirements, a student will need to complete five (5) Core requirements at U. of Notre Dame or Washington U.
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 <sup>†</sup> 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	(3)	
	Theology & Wisdom	THEO 150-159	(3)	
	Theology & the Good Life	THEO 160-169	(3)	
<b>Total Core Credits taken at King's</b>			<b>24</b>	

Foundational Mathematics, Science and Engineering Requirements		Credits
PHYS 113 <sup>2,CR</sup> Physics for Science & Engineering I		3
PHYS 113L Phys. for Sci. & Eng. I Lab		1
PHYS 114 <sup>PR</sup> Physics for Science & Engineering II		3
PHYS 114L <sup>PR</sup> Phys. for Sci. & Eng. II Lab		1
CHEM 113 <sup>2</sup> General Chemistry I		3
CHEM 113L General Chemistry I Lab		1
CHEM 114 <sup>PR</sup> General Chemistry II		3
CHEM 114L <sup>PR</sup> General Chemistry II Lab		1
MATH 129 Calculus I		4
MATH 130 <sup>PR</sup> Calculus II		4
MATH 231 <sup>PR</sup> Calculus III		4
MATH 237 <sup>PR</sup> Math Methods for Physical Sciences		3
MATH 238 <sup>PR</sup> Differential Equations		3
ENGR 150 Engineering Seminar		2
ENGR 250 <sup>PR</sup> System Design & Analysis		3
ENGR 250L <sup>PR</sup> Syst. Design & Analysis Lab		1
ENGR 300 Programming for Science and Eng		3
ENGR 300L Programming for Science and Eng. Lab		1
BIOL 213 Cell and Molecular Biology <sup>#</sup>		3
BIOL 213L Cell and Molecular Biology Lab <sup>#</sup>		1
<b>Other Requirements</b>		
HCE 101 Holy Cross Experience		1
<b>Total Foundational Mathematics, Science and Engineering Requirements and Other Credits</b>		<b>45-49</b>

Chemistry Major Requirements		Credits
CHEM 241 <sup>PR</sup> Organic Chem. I		3
CHEM 241L <sup>PR</sup> Organic Chem. I Lab		1
CHEM 242 <sup>PR</sup> Organic Chem. II		3
CHEM 242L <sup>PR</sup> Organic Chem. II Lab		1
CHEM 243 <sup>PR</sup> Analytical Chem.		3
CHEM 243L <sup>PR</sup> Analytical Chem. Lab		2
CHEM 244 <sup>PR</sup> Instrumental Analysis		3
CHEM 244L <sup>PR</sup> Instr. Analysis. Lab		2
CHEM 351 <sup>PR</sup> Technological Competency		1
CHEM 357 <sup>PR</sup> Physical Chem. I		3
CHEM 357L <sup>PR</sup> Physical Chem. I Lab		2
CHEM 358 <sup>PR</sup> Physical Chem. II		3
CHEM 358L <sup>PR</sup> Physical Chem. II Lab		2
CHEM 471 <sup>PR</sup> Advanced Inorg. Chem.*		-
CHEM 493 <sup>PR</sup> Senior Colloquium I**		-
CHEM 494 <sup>PR</sup> Senior Colloquium II**		-
<b>Total Chemistry Major Credits</b>		<b>29</b>
<b>General Information</b>		
<p>The 3+2 Chemistry-Chemical Engineering Dual Degree Program is a collaboration with the University of Notre Dame and 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 Notre Dame or 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 Chemistry from King's College and a B.S. in Chemical Engineering from Notre Dame or WashU. (For more information, refer to the college catalog).</p>		

**Total Credits earned at King's College = 98-102**

#### Notes:

\* CHEM 471<sup>PR</sup> Advanced Inorganic Chemistry required for the King's degree satisfied by taking CHEM 40443 Inorganic Chemistry at Notre Dame or CHEM 461 Inorganic Chemistry at Washington University

\*\* CHEM 493<sup>PR</sup> and CHEM 494<sup>PR</sup> Senior Colloquium required for the King's degree satisfied by taking CBE 40448 Chemical Process Design at Notre Dame or EECE 402 ChE Capstone at Washington University

<sup>#</sup> Required for the Chemical Engineering program at Washington University. Please see the Biology chair-person about prerequisites.

See reverse side for a suggested sequence

Effective 07/01/2025

# Chemistry – Chemical Engineering Track

## 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 2022	Credits	Spring 2023	Credits
CHEM 113 <sup>2</sup> Gen. Chem. I	3	CHEM 114 <sup>PR</sup> Gen. Chem. II	3
CHEM 113L Gen. Chem. I Lab	1	CHEM 114L <sup>PR</sup> Gen. Chem. II Lab	1
PHYS 113 <sup>2,CR</sup> Physics for Scientists & Engineers I	3	PHYS 114 <sup>PR</sup> Physics for Scientists & Engineers II	3
PHYS 113L Physics for Sci. & Eng. I Lab	1	PHYS 114L <sup>PR</sup> Physics for Sci. & Eng. II Lab	1
MATH 129 Calculus I	4	ENGR 150 Engineering Seminar	2
Core Course <sup>1</sup>	3	MATH 130 <sup>PR</sup> Calculus II	4
HCE 101 Holy Cross Experience	1	Core Course <sup>1</sup>	3
	<b>16</b>		<b>17</b>
Fall 2023	Credits	Spring 2024	Credits
CHEM 241 <sup>PR</sup> Organic Chemistry I	3	CHEM 242 <sup>PR</sup> Organic Chemistry II	3
CHEM 241L <sup>PR</sup> Organic Chemistry I Lab	1	CHEM 242L <sup>PR</sup> Organic Chemistry II Lab	1
MATH 231 <sup>PR</sup> Calculus III	4	ENGR 250 <sup>PR</sup> System Design & Analysis	3
MATH 238 <sup>PR</sup> Differential Equations	3	ENGR 250L <sup>PR</sup> Syst. Design & Analysis Lab	1
ENGR 300 Programming for Science and Eng	3	MATH 237 <sup>PR</sup> Math Methods for Phys. Sci.	3
ENGR 300L Programming for Science and Eng. Lab	1	Core Course <sup>1</sup>	3
Core Course <sup>1</sup>	3	Core Course <sup>1</sup>	3
	<b>18</b>		<b>17</b>
Fall 2024	Credits	Spring 2025	Credits
CHEM 243 <sup>PR</sup> Analytical Chemistry	3	CHEM 244 <sup>PR</sup> Instrumental Analysis	3
CHEM 243L <sup>PR</sup> Analytical Chemistry Lab	2	CHEM 244L <sup>PR</sup> Instrumental Analysis Lab	2
CHEM 357 <sup>PR</sup> Physical Chemistry I	3	CHEM 358 <sup>PR</sup> Physical Chemistry II	3
CHEM 357L <sup>PR</sup> Physical Chemistry I Lab	2	CHEM 358L <sup>PR</sup> Physical Chemistry II Lab	2
CHEM 351 <sup>PR</sup> Technological Competency	1	Core Course <sup>1</sup>	3
BIOL 213 Cell and Molec. Biology <sup>#</sup>	3	Core Course <sup>1</sup>	3
BIOL 213L Cell and Molecular Biology Lab <sup>#</sup>	1		
Core Course <sup>1</sup>	3		
	<b>14-18</b>		<b>16</b>

**Total Credits earned at King's College = 98-102**

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

- For Admission to the University of Notre Dame
  - Cumulative grade-point average (GPA) of at least 3.6 on a 4.0 scale.
  - Cumulative technical grade-point average of at least 3.6 on a 4.0 scale (all math, science and engineering courses)
  - GPA must be maintained through Spring Semester of Year 3
  - All grades that transfer to Notre Dame must be a "B" or higher, and grades for all courses taken at King's must be a C or higher.
  - At least 60 credit-hours of work that can be transferred to satisfy Notre Dame engineering and general education degree requirements.
- For Admission to Washington University in St. Louis
  - Cumulative grade-point average (GPA) of at least 3.25 on a 4.0 scale.
  - Cumulative technical grade-point average of at least 3.25 on a 4.0 scale (all math, science, and engineering courses)
  - GPA must be maintained through Spring Semester of Year 3
  - All grades that transfer to Washington University must be a "C" or higher.
  - 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:

CHEM 40443 Inorganic Chemistry will satisfy Notre Dame's Advanced Science Elective requirement.

CHEM 357/L satisfies the Notre Dame requirement for CBE 20260 Thermodynamics

CHEM 243/L satisfies the Notre Dame requirements for CHEM 30333 Analytical Chemistry and CHEM 31333 Analytical Chemistry Lab

CHEM 358/L satisfies the Notre Dame requirement for CHEM 30324 Physical Chemistry

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

<sup>#</sup> Required for the Chemical Engineering program at Washington University

<sup>1</sup> Choose one course from each of the Core Requirements listed on the reverse side.

<sup>2</sup> 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.

<sup>PR</sup> Course has a prerequisite – check college catalog.

<sup>CR</sup> Course has a co-requisite – check college catalog.