

CHEMICAL ENGINEERING

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	CHE 120 (MATH 125, CHEM 105AL) or GE A 4	CHE 330 (MATH 226g) 4	PHYS 152L PHYS 151L, (MATH 226) 4	GE C 4	GE B 4	GE D* 4	GE C 4
CHE 120 (MATH 125, CHEM 105a) or GE A 4	MATH 126 or MATH 129* MATH 125 4	MATH 226 or MATH 229 MATH 126 or 129 4	CHEM 322aL CHEM 105bL 4	CHE ELECTIVE 4	CHE 444cL CHE 330, 444bL (CHE 447) 2	CHE 460L CHE 120, (MATH 245) 4	CHE 480 CHE 485 4
MATH 125 (GE F)* 4	CHEM 105bL CHEM 105aL 4	PHYS 151L (GE E) MATH 125 or 126 or 226 4	MATH 245 MATH 226 or 229 4	CHEM 430 CHEM 300L or 322aL, MATH 226, PHYS 151L 4	CHE 442 MATH 245, CHE 443 4	CHE 485 CHE 442, CHE 443 4	CHEMISTRY ELECTIVE 4
CHEM 105aL (GE E)* 4	GESM (GE B)# 4	CHE 305 MATH 125 or 126 or 226 4	CHE 444aL CHE 120, (CHE 330) 2	CHE 447 MAT305I5, CHE 443 4	CHE 448 CHE 330, 447 4	WRIT 340 WRIT 150 4	STEM ELECTIVE 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	CHE 443 (CHE 350 or MATH 245) 4	CHE 444bL CHE 330, (CHE 443) 2	OPTIONAL ELECTIVE 4	ENGINEERING ELECTIVE 4	OPTIONAL ELECTIVE 2

Engineering (58 Units)

- CHE 120: Intro. to Chemical Engineering
- CHE 305: Numerical & Statistical Analysis for Chemical Engineers
- CHE 330: Chemical Engr. Thermodynamics
- CHE 442: Chemical Reactor Design
- CHE 443: Viscous Flow
- CHE 444aL: Chemical Engineering Lab
- CHE 444bL: Chemical Engineering Lab
- CHE 444cL: Chemical Engineering Lab
- CHE 447: Heat and Mass Transfer in Chemical Engineering Processes
- CHE 448: Separation Processes in Chemical Engineering
- CHE 460L: Chem. Proc. Dynamics & Control
- CHE 480: Chem. Process and Plant Design
- CHE 485: Computer Aided Chemical Process Design
- ENGR 102: Engineering Freshman Academy
- CHE ELECTIVE
- ENGINEERING ELECTIVE
- STEM ELECTIVE

Mathematics (16 Units)

- MATH 125: Calculus I*
- MATH 126 or MATH 129: Calculus II*
- MATH 226 or MATH 229: Calculus III
- MATH 245: Mathematics of Phys. and Engr.

Writing (8 Units)

- WRIT 150: Writing and Critical Reasoning
- WRIT 340: Advanced Writing

Physics (8 Units)

- PHYS 151L: Mechanics and Thermodynamics
- PHYS 152L: Electricity and Magnetism

General Education (32 Units)

- GE A The Arts (1 Course)*
- GE B Humanistic Inquiry (2 Courses)
- GE C Social Analysis (2 Courses)
- GE D Life Sciences (1 Course)*
- GE E Physical Sciences (1 Course)*
- GE F Quantitative Reasoning (1 Course)*
- GE G,H Global Perspectives (2 Courses)*
- GESM General Education Seminar (1 Course)

Chemistry (20 Units)

- CHEM 105aL: General Chemistry*
- CHEM 105bL: General Chemistry
- CHEM 322aL: Organic Chemistry
- CHEM 430: Physical Chemistry: Thermodynamics & Kinetics
- CHEMISTRY ELECTIVE

SPECIAL NOTES

- Courses with the * symbol** may be satisfied with AP, IB or A-Level exams. See page 18 for more information.
- GESM#:** GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.
- GE:** Engineering students are encouraged to satisfy GE-G and GE-H with a course that also satisfies a Core Literacy. GE-H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.
- CHE Elective:** An upper-division chemical engineering course.
- Chemistry Elective:** CHEM 300, CHEM 322b, or CHEM 431
- ENGINEERING ELECTIVE:** An upper-division engineering course (subject to advisor approval).
- STEM Elective:** An upper-division elective course in math, science, or engineering (subject to advisor approval).

EMPHASIS COURSE TRACKS FOR CHEMICAL ENGINEERING

The Chemical Engineering (CHE) curriculum covers foundational concepts for the first several semesters. Students following the standard program will have the opportunity to take more technical electives, while students following one of the emphasis course tracks will take specific courses towards that specialization.

Biological & Pharmaceutical Engineering

THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING
GE C 4	EMPHASIS ELECTIVE 4	GE B 4	GE C 4
BISC 320L (GE D)* CHEM 105bL, 108, 115b OR BISC 330L CHEM 322a OR 325a 4	CHE 442 MATH 245 and CHE 443 4	WRIT 340 WRIT 150 4	GE D** 4
CHEM 430 CHEM 300L or 322aL, MATH 226, PHYS 151L 4	EMPHASIS ELECTIVE 4	CHE 460L CHE 120, (MATH 245) 4	EMPHASIS ELECTIVE 4
CHE 447 MATH 245, CHE 443 4	CHE 444cL CHE 330, (CHE 447) 2	CHE 485 CHE 442, 443 4	OPTIONAL ELECTIVE 4
CHE 444bL CHE 330, (CHE 443) 2	CHE 448 CHE 330, 447 4	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

Energy & Sustainability

THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING
GE C 4	GE B 4	GE D** 4	GE C 4
CHEM 430 CHEM 300L or 322aL, MATH 226, PHYS 151L 4	EMPHASIS ELECTIVE 4	CHE 460L CHE 120, (MATH 245) 4	EMPHASIS ELECTIVE 4
CHE 447 MATH 245, CHE 443 4	CHE 442 MATH 245, CHE 443 4	CHE 485 CHE 442, CHE 443 4	CHE 480 CHE 485 4
CHE 463 MATH 245, PHYS 151, CHEM 105A 4	CHE 448 CHE 330, 447 4	CHE 450 CHE 330 4	WRIT 340 WRIT 150 4
CHE 444bL CHE 330, (CHE 443) 2	CHE 444cL CHE 330, CHE 444bL, (CHE 447) 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

* Satisfies GE D (life sciences requirement)

** Should a student not fulfill the GE D requirement through the completion of BISC 320, then they must enroll in an alternative GE D course.

Petroleum & Subsurface Engineering

THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING
CHEM 430 CHEM 300L or 322aL, MATH 226, PHYS 151L 4	GE C 4	GE D** 4	GE B 4
CHE 447 MATH 245, CHE 443 4	PTE 464L PTE 463L 4	CHE 485 CHE 442, CHE 443 4	GE C 4
PTE 461 4	CHE 442 MATH 245, CHE 443 4	CHE 460L CHE 120, (MATH 245) 4	CHE 480 CHE 485 4
PTE 463L MATH 245, CHEM 105aLg or 115aLg, PHYS 151L 4	CHE 448 CHE 330, 447 4	PTE 465L PTE 464L 3	WRIT 340 WRIT 150 4
CHE 444bL CHE 330, (CHE 443) 2	CHE 444cL CHE 330, CHE 444bL, (CHE 447) 2	OPTIONAL ELECTIVE 3	OPTIONAL ELECTIVE 2

Materials Engineering

THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING
CHEM 430 CHEM 300L or 322aL, MATH 226, PHYS 151L 4	GE B 4	GE D** 4	GE C 4
CHE 447 MATH 245, CHE 443 4	EMPHASIS ELECTIVE 4	CHE 485 CHE 442, CHE 443 4	EMPHASIS ELECTIVE 4
MASC 310 4	CHE 442 MATH 245, CHE 443 4	CHE 460L CHE 120, (MATH 245) 4	CHE 480 CHE 485 4
GE C 4	CHE 448 CHE 330, 447 4	WRIT 340 WRIT 150 4	EMPHASIS ELECTIVE 4
CHE 444bL CHE 330, (CHE 443) 2	CHE 444cL CHE 330, CHE 444bL, (CHE 447) 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2