

# GEP

## Requirements for the Chemistry Major: Environmental Chemistry Option

(updated 9-30-13)

**Degree Requirements: 40 courses are required for graduation. These 40 courses are comprised of:** A) GEP Signature Core, B) GEP Variable courses, C) GEP Integrative Learning Courses, D) Major Requirements, E) free electives, and F) Overlays.

A. GEP Signature Core Courses All non-transfer students must take these 6 Courses at SJU.	Semester completed
PHL 154 Moral Foundations	
THE 154 Faith, Justice & the Catholic Trad	
ENG 102 Texts and Contexts (pre-req: ENG 101)	
HIS 154 Forging the Modern World	
First Year Seminar	
Faith and Reason Course (pre-reqs: THE 154 and PHL 154). <i>See page 3 for additional information on this requirement.</i>	

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B. GEP Variable Course (Maximum 9 courses)	Course(s) required/taken Please note students may earn AP credit and/or use transfer credits to meet these requirements	Semester Completed	
Fine and Performing Arts or Literature	One course		
Mathematics (Beauty)	MAT 161 (Calculus I)		
Natural Science	CHM 120 General Chemistry I (or CHM 121 Gen Chem Honors) and CHM 120L General Chemistry Lab I		
Non-native Language	1-2 courses at the level in which the student is placed. Possible sequence options include: 101___ 102___ (2 courses) 102___ 201___ (2 courses) 201___ 202___ (2 courses) 202___ 301___ (2 courses) 301___ (1 course) <b>AP Score of 4</b> – awarded credit for 202 and required to complete one additional course at SJU (typically 301 or 303) <b>AP score of 5</b> - awarded credit for 2 courses - requirement is fulfilled. No additional courses required at SJU.	Course 1	Course 2
Social/Behavioral Science	One course		
Philosophy (Phil. Anthropology)	One course		
Theology (Religious Difference)	One course. The course used to satisfy this requirement cannot be used to satisfy and the diversity/globalization/non-Western overlay		
Writing	ENG 101 Craft of Language - May also be satisfied by earning a 4 or a 5 on the English Literature or Language AP test.		

C. GEP Integrative Learning Courses for Chemistry (3 courses)	Semester Completed
1. MAT 162 Calculus II	
2. PHY 105/105L University Physics I/Lab I	
3. PHY 106/106L – University Physics II /Lab II	

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D. Major Requirements		Semester completed
Course		
1.	CHM 125 General Chemistry II (or CHM 126 Gen Chem II Honors) and CHM 125L General Chemistry Lab II	
2.	CHM 210/210L – Organic Chemistry I and Organic Chemistry Lab I	
3.	CHM 215/215L – Organic Chemistry II and Organic Chemistry Lab II	
4.	CHM 310– Physical Chemistry I	
	CHM 310L Physical Chemistry Lab	
5.	CHM 315 – Physical Chemistry II	
6.	CHM 330/330L – Instrumental Analysis and Instrumental Analysis Lab	
7.	CHM 340/340L – Biochemistry and Biochemistry Lab	
8.	CHM 350/350L – Inorganic Chemistry and Inorganic Chemistry Lab	
9- 11.	<p><b>In-Depth Course Requirements</b></p> <p>Three In-Depth Chemistry courses, which must include:</p> <p>A. CHM 420 Environmental Chemistry and</p> <p>B. CHM 400 Chemistry of the Earth <b>OR</b> CHM 460 Aqueous Chemistry</p> <p>C. A third in-depth chemistry course from the list below <b>OR</b> Senior Research I-II (students are encouraged to perform research in environmental chemistry) <b>OR</b> one Math/Natural Science elective (see list below, this option must be approved by the Chemistry Chair in advance)</p>	
	<p><b>In-Depth Chemistry Courses:</b></p> <p>CHM 410 Biophysical Chemistry</p> <p>CHM 430 Mechanisms in Organic Chemistry</p> <p>CHM 440 Organometallic Chemistry</p> <p>CHM 460 Aqueous Chemistry</p> <p>CHM 480 Advanced Biochemistry: Inorganic Biochemistry</p> <p>CHM 490 Spectroscopy</p>	
	<p><b>Math and Natural Science Electives:</b></p> <p>BIO 101 Biology I: Cells</p> <p>MAT 213 Calculus III</p> <p>MAT 225 Fundamental Ideas of Mathematics</p> <p>MAT 231 The Mathematics of Music</p> <p>MAT 232 Chaos, Fractals, and Dynamical Systems</p> <p>MAT 233 History of Mathematics</p> <p>MAT 334 Combinatorics and Graph Theory</p> <p>MAT 336 Logic and Foundations</p> <p>PHY 251 Modern Physics I</p> <p>PHY 253 Survey of Nanotechnology</p> <p>PHY 255 Linear Systems in Physics</p> <p>PHY 257 Mathematical Methods in Physics</p> <p>PHY 261 Electronics I</p> <p>PHY 301 Classical Mechanics</p>	

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<b>E. Free Electives</b> (Minimum 11 courses) Note that the number of free electives may vary depending on AP credits earned and number of courses required for the non-native language requirement.			
Course	Semester Completed	Course	Semester Completed
1.		7.	
2.		8.	
3.		9.	
4.		10.	
5.		11.	
6.			

<b>F. Overlays</b> These overlays may be fulfilled by a GEP variable course, major course or free elective that is certified to meet the requirement. To determine which courses have been certified to fulfill these overlays, please use the "Attribute Type" search option in the "Look up classes" search page on My SJU. <i>See below for an additional note on these requirements.</i>	Semester Completed
1. Writing-Intensive (pre-req: ENG 101) (CHM 350L satisfies this requirement)	
2. Ethics-Intensive (pre-req: PHL 154)	
3. Diversity/Globalization/non-Western - Please note that the course used to fulfill the Religious Difference course requirement cannot be used to also fulfill the Diversity, Non-Western, or Globalization overlay.	

**Note regarding Three Overlays and the Faith & Reason Requirement:** As noted above, in addition to the 40 courses outlined, students must complete: (1) one course certified in diversity, globalization, or non-Western studies, (2) one ethics-intensive course, and (3) one writing-intensive course. Below are specific guidelines for each class with regard to overlay requirements and the Faith & Reason signature core course:

### ***Class of 2014:***

Of the four GEP requirements, Faith & Reason and the three overlay requirements, students in the class of 2014 need to satisfy two of the four requirements. With respect to these four components of the GEP, this means that students in the class of 2014 are required to complete (1) a Faith and Reason course and one overlay requirement OR (2) two overlay requirements.

### ***Class of 2015:***

Of the four GEP requirements, Faith & Reason and the three overlay requirements, students in the class of 2015 are required to complete three of the four. Students in the class of 2015 are required to complete (1) a Faith and Reason course and two overlay requirements OR (2) all three overlay requirements.

### ***Class of 2016:***

Students in the Class of 2016 must complete the GEP Faith & Reason course requirement and two of the three overlays.

### ***Class of 2017***

Students in the Class of 2017 are required to complete all four GEP requirements, Faith & Reason and the three overlays.

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See page 1-3 for Additional information on Major Requirements

FIRST-YEAR	Fall	Spring
	<ul style="list-style-type: none"><li>• CHM 120 (or Honors CHM 121), 120L</li><li>• MAT 161</li><li>• Non-Native Language I</li><li>• ENG 101</li><li>• First-Year Seminar</li></ul>	<ul style="list-style-type: none"><li>• CHM 125 (or Honors CHM 126), 125L</li><li>• MAT 162 (ILC)</li><li>• Non-Native Language II</li><li>• ENG 102</li><li>• THE 154</li></ul>
SOPHOMORE	<b>Fall</b>	<b>Spring</b>
	<ul style="list-style-type: none"><li>• CHM 210, 210L</li><li>• PHY 105, 105L (ILC)</li><li>• PHL 154</li><li>• Social/Behavioral Science</li><li>• Elective</li></ul>	<ul style="list-style-type: none"><li>• CHM 215, 215L</li><li>• PHY 106, 106L (ILC)</li><li>• History 154</li><li>• Elective</li><li>• Elective (or overlay)</li></ul>
JUNIOR	<b>Fall</b>	<b>Spring</b>
	<ul style="list-style-type: none"><li>• CHM 310, 310L</li><li>• CHM 340, 340L</li><li>• Art Lit</li><li>• THE (Religious Difference)</li><li>• Elective (or overlay)</li></ul>	<ul style="list-style-type: none"><li>• CHM 315</li><li>• CHM 330, 330L</li><li>• PHL Anthropology</li><li>• Elective (or overlay)</li><li>• Elective</li></ul>
SENIOR	<b>Fall</b>	<b>Spring</b>
	<ul style="list-style-type: none"><li>• CHM 350, 350L</li><li>• In-Depth CHM Requirement (1 of 3 courses)</li><li>• In-Depth CHM Requirement (3 of 3 courses) or elective</li><li>• Faith &amp; Reason</li><li>• Elective</li></ul>	<ul style="list-style-type: none"><li>• In-Depth CHM Requirement (2 of 3 courses)</li><li>• In-Depth CHM Requirement (3 of 3 courses) or elective</li><li>• Elective</li><li>• Elective</li><li>• Elective</li></ul>

**CHM 390 Seminar.** In addition to the courses listed above, the CHM 390 is required each semester for juniors and seniors. This is a non-credit course.