




Credit Requirements		<div style="text-align: right;">  </div> <div style="text-align: center;"> <h2>Department of Chemistry</h2> <h3>PhD in Biomedical Sciences: Health and Environmental Chemistry Requirements</h3> </div>														
Total Credits	90															
Five proficiency courses (listed below in bold) from 4 core sections: <i>Analytical Chemistry, Biochemistry, *Toxicology, Environmental Sciences</i>																
SCI 511 - Ethic & Practice of Science	2															
Doctoral Seminar	2															
Thesis Research (CHM 690, CHM 799)	≥ 30															
Advanced coursework in dissertation area	9															
Transfer credits need approval		F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
<u>Biochemistry or approved Biology</u>																
CHM 453 - Biochemistry I																
CHM 454 - Biochemistry II																
CHM 457 - Biochemistry Lab																
CHM 550 - Science & Business of Biotechnology																
CHM 553 - Advanced Biochemistry																
CHM 554 - Topics in Biochemistry																
CHM 555 - Signal Transduction																
*CHM 581 - Biochemical Toxicology																
<u>Inorganic chemistry</u>		F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
CHM 463 - Inorganic Chemistry																
CHM 563 - Advanced Inorganic Chemistry																
CHM 564 - Topics in Inorganic Chemistry																
CHM 565 - Bioinorganic Chemistry																
<u>Organic chemistry</u>		F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
CHM 438 - Organic/Inorganic Laboratory (2 credits)																
CHM 534 - Advanced Organic Chemistry																
CHM 535 - Topics in Organic Chemistry																
CHM 539 - Applied Organic Spectroscopy																
<u>Physical chemistry</u>		F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
CHM 540 - Symmetry in Chemistry																
CHM 541 - Advanced Physical Chemistry																
CHM 542 - Topics in Physical Chemistry																
CHM 544 - Computational Chemistry																

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<u>Polymer or Industrial chemistry</u>		F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
CHM 470 - Industrial Chemistry																
CHM 471 - Structure & Synthesis of Polymers																
CHM 472 - Chemical & Physical Properties of Polymers																
CHM 477 - Macromolecular Laboratory (2 credits)																
CHM 573 - Fundamentals of Materials Chemistry																
CHM 574 - Polymer Science & Technology																
<u>Analytical chemistry</u>		F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
CHM 412 - Atmospheric Chemistry																
CHM 426 - Instrumental Analysis																
CHM 427 - Electrochemistry																
CHM 521 - Advanced Analytical Chemistry																
CHM 522 - Topics in Analytical Chemistry																
CHM 523 - Chemical Separations																
<u>Environmental Science</u>		F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
CHM 410 - Environmental Chemistry																
CHM 413 - Environmental Aquatic Chemistry																
*ENV 446 - Industrial & Environmental Toxicology																
ENV 452 - Environmental Management Systems																
ENV 461 - Environmental Law & Policies																
ENV 474 - Industrial Hygiene Monitoring Methods																
ENV 474 - Industrl Hygiene Monit Methds																
ENV 484 - Enviornmental Toxicology																
ENV 485 - Enviornmental Fate & Transport																
ENV 486 - Toxic Substance Control																

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SCI 511 - Ethic & Practice of Science	2																
Doctoral Seminar	2																
Thesis Research (CHM 690, CHM 799)	≥ 30																
Advanced coursework in dissertation area	9																
CHM 685 - Seminar in Health & Environmental Chemistry																	
CHM 690 - Graduate Research																	
CHM 799 - Doctoral Research in Chemistry																	
Elective																	
Elective																	
Totals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total:																0	

May not duplicate courses already taken for undergraduate degree. No more than 12 credits at the 400 level are allowed.

Students expected to attend departmental seminars (CHM 400).

Qualify exams: first two years. Requirement: Need to pass 4 out of 6 or 5 out of 8 or 6 out of 12 qualify exams.

Oral exams: 1st oral (in conjunction with dissertation proposal approval process) will first be presented to the committee followed by a public presentation. 2nd oral to be presented the second semester of the second year. Justification is needed for later presentation.