



DEPARTMENT OF CHEMISTRY AND  
BIOCHEMISTRY

Bachelor of Arts in Chemistry:  
Chemistry concentration

INTRODUCTORY COURSES REQUIREMENTS

	Pre-requisite courses (C or better required)
<input type="checkbox"/> CHEM 113.4. General Chemistry I <input type="checkbox"/> CHEM 113.1. Introduction to Lab Techniques	<input type="checkbox"/> MATH 115. College algebra or equivalent*
<input type="checkbox"/> CHEM 114.4. General Chemistry II <input type="checkbox"/> CHEM 114.1. Quantitative and Qualitative Analysis	<input type="checkbox"/> MATH 122. Precalculus or equivalent** <input type="checkbox"/> CHEM 113.4 and 113.1

\*Placement into MATH 122, MATH 141, or MATH 151 fulfills this requirement.

\*\*Placement into MATH 141 or MATH 151 by achieving a grade of 80 or better on MATH B Regents, a grade of 600 or better on the SAT Mathematics exam, or a grade of C- or better in MATH 122.

INTERMEDIATE COURSES REQUIREMENTS

	Pre-requisite or <i>co-requisite</i> courses. (C or better required in all pre-requisite courses.)
<input type="checkbox"/> CHEM 211. Thermodynamics and Kinetics	<input type="checkbox"/> MATH 151. Calculus I (or MATH 141 and MATH 142) <input type="checkbox"/> MATH 152. Calculus II (or MATH 143) <input type="checkbox"/> <i>PHYS 145.4. Principles of Physics I</i> <input type="checkbox"/> <i>PHYS 145.1. Principles of Physics I Lab</i>
<input type="checkbox"/> CHEM 212. Quantum Mechanics and Spectroscopy	<input type="checkbox"/> <i>PHYS 146.4. Principles of Physics II</i> <input type="checkbox"/> <i>PHYS 146.1. Principles of Physics II Lab</i>
<input type="checkbox"/> CHEM 251.4. Organic Chemistry I <input type="checkbox"/> CHEM 251.1. Organic Chemistry I Lab	<input type="checkbox"/> CHEM 114.4. and 114.1.
<input type="checkbox"/> CHEM 252.4. Organic Chemistry II <input type="checkbox"/> CHEM 252.1. Organic Chemistry II Lab	<input type="checkbox"/> CHEM 251.4 and 251.1.

ADVANCED COURSE REQUIREMENTS

	Pre-requisite or <i>co-requisite</i> courses. (C or better required in all pre-requisite courses.)
<input type="checkbox"/> CHEM 331.3. Inorganic Chemistry (Fall only) <input type="checkbox"/> CHEM 331.1*. Physical Inorganic Chemistry (Fall only)	<input type="checkbox"/> CHEM 252.4. and 252.1. <input type="checkbox"/> MATH 151 (or MATH 141 and 142).
<input type="checkbox"/> CHEM 341.3. Instrumental Methods (Spring only) <input type="checkbox"/> CHEM 341.1*. Instrumental Methods Lab (Spring only)	<input type="checkbox"/> CHEM 252.4 and 252.1. <input type="checkbox"/> CHEM 211. <i>(can be taken as a co-req with permission of dept)</i> <input type="checkbox"/> <i>PHYS 145.4 and 145.1.</i> <input type="checkbox"/> <i>PHYS 146.4. and 146.1.</i>
<input type="checkbox"/> CHEM 371. Biochemistry I	<input type="checkbox"/> CHEM 252.4 and 252.1. <input type="checkbox"/> BIOL 105. General Biology: Physiology and Cell Biology.
<input type="checkbox"/> CHEM 395*. Senior Thesis – Capstone course	<input type="checkbox"/> Departmental permission and Senior standing.
<b>Advanced lecture elective</b> (at least one chosen from below)	
<input type="checkbox"/> CHEM 351. Advanced Organic Chemistry (Fall only)	<input type="checkbox"/> CHEM 252.4 and 252.1.
<input type="checkbox"/> CHEM 352. Physical Methods of Structure Determination (Spring only)	<input type="checkbox"/> CHEM 252.4. and 252.1.
<input type="checkbox"/> CHEM 372. Biochemistry II (Spring only)	<input type="checkbox"/> CHEM 371.
<input type="checkbox"/> CHEM 378. Physical Biochemistry (Spring only)	<input type="checkbox"/> CHEM 211. <input type="checkbox"/> CHEM 252.4 and 252.1. <input type="checkbox"/> CHEM 371. <input type="checkbox"/> <i>PHYS 146.4 and 146.1.</i>
<input type="checkbox"/> CHEM 385. Directed Study in Advanced Chemistry	<input type="checkbox"/> CHEM 211, 212 or 251.4.

\*Has been submitted as a writing intensive course. Check with department for status.

*more information on back*

## ADDITIONAL LABORATORY REQUIREMENTS

	Pre-requisite or <i>co-requisite</i> courses. (Grade of C or better required in pre-requisites unless otherwise stated).
<b>Advanced laboratory elective</b> (one chosen from below)	
<input type="checkbox"/> CHEM 376. Biochemistry Laboratory	<input type="checkbox"/> CHEM 371. Biochemistry I. with grade of C- or better.
<input type="checkbox"/> CHEM 387*. Advanced Inorganic and Organic Chemistry Laboratory (Fall only)	<input type="checkbox"/> CHEM 252.4 and 252.1. <input type="checkbox"/> CHEM 331.3 and 331.1 with grade of C- or better. <input type="checkbox"/> CHEM 351, 352 or 385.
<input type="checkbox"/> CHEM 388*. Advanced Physical and Biophysical Chemistry Laboratory (Spring only)	<input type="checkbox"/> CHEM 211. <input type="checkbox"/> CHEM 212 or 378.

<b>At least two additional credit hours chosen from below:</b>	
<input type="checkbox"/> CHEM 291. (3 hr., 1 cr.) Introduction to Research in Chemistry and Biochemistry. <i>May be taken up to 3 times for credit.</i>	<input type="checkbox"/> CHEM 113.4 and 113.1. <input type="checkbox"/> MATH 122. <input type="checkbox"/> CHEM 114.4. and 114.1. <input type="checkbox"/> <i>Permission of a research mentor in the department.</i>
CHEM 321. Practicum in Chemical Education. <i>May be repeated for maximum of 9 credits.</i> <input type="checkbox"/> CHEM 321.1. (4 hr., 1 cr.) <input type="checkbox"/> CHEM 321.2. (8 hr., 2 cr.) <input type="checkbox"/> CHEM 321.3. (12 hr., 3 cr.)	<input type="checkbox"/> CHEM 251.4 and 251.1. <input type="checkbox"/> CHEM 252.4 and 252.1. <input type="checkbox"/> <i>Permission of the chemical education concentration advisor.</i>
<input type="checkbox"/> CHEM 376. Biochemistry Laboratory	<input type="checkbox"/> CHEM 371. Biochemistry I. with grade of C- or better.
<input type="checkbox"/> CHEM 387*. Advanced Inorganic and Organic Chemistry Laboratory (Fall only)	<input type="checkbox"/> CHEM 252.4 and 252.1. <input type="checkbox"/> CHEM 331.3 and 331.1 with grade of C- or better. <input type="checkbox"/> CHEM 351, 352 or 385.
<input type="checkbox"/> CHEM 388*. Advanced Physical and Biophysical Chemistry Laboratory (Spring only)	<input type="checkbox"/> CHEM 211. <input type="checkbox"/> CHEM 212 or 378.
CHEM 391. Research in Chemistry and Biochemistry <i>May be repeated for a maximum of 12 credits.</i> <input type="checkbox"/> CHEM 391.1. (4 hr., 1 cr.) <input type="checkbox"/> CHEM 391.2. (8 hr., 2 cr.) <input type="checkbox"/> CHEM 391.3. (12 hr., 3 cr.)	<input type="checkbox"/> CHEM 252.4 and 252.1 or CHEM 211 and 212 (or 378) <input type="checkbox"/> <i>Permission of a research mentor in the department.</i>
HMNS 102. Introduction to Science Honors Research and Seminar (6 hr.; 2 cr.)	<input type="checkbox"/> HMNS 101. Science Honors Seminar <input type="checkbox"/> <i>Permission of a research mentor in the department.</i>
HMNS 291. Intermediate Science Honors Research. <input type="checkbox"/> HMNS 291.1 (3 hr., 1 cr.) <input type="checkbox"/> HMNS 291.2 (6 hr., 2 cr.) <input type="checkbox"/> HMNS 291.3 (9 hr., 3 cr.)	<input type="checkbox"/> HMNS 102 <input type="checkbox"/> <i>Permission of HMNS director.</i> <input type="checkbox"/> <i>Permission of a research mentor in the department</i>
HMNS 391. Advanced Science Honors Research. <input type="checkbox"/> HMNS 391.1 (3 hr., 1 cr.) <input type="checkbox"/> HMNS 391.2 (6 hr., 2 cr.) <input type="checkbox"/> HMNS 391.3 (9 hr., 3 cr.)	<input type="checkbox"/> 3 credits of HMNS 291 <input type="checkbox"/> <i>Permission of HMNS director.</i> <input type="checkbox"/> <i>Permission of a research mentor in the department</i>

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