

Course	Written and Oral Communication Skills	Expertise in Chemistry	Design and Conduct Research	Experimental Design and Data Analysis	Responsible Conduct of Research
<a href="#">CHEM 504 Advanced Organic Chemistry I</a>	O	R, A	O	R	O
<a href="#">CHEM 506 Introduction to Spectroscopic Methods in Organic Chemistry</a>	O	R	O	R	O
<a href="#">CHEM 507 Introduction to Natural Products</a>	O	R	O	O	O
<a href="#">CHEM 510 Atomic and Molecular Structure</a>	O	R, A	O	O	O
<a href="#">CHEM 511 Chemical Thermodynamics and Kinetics</a>	O	R, A	O	O	O
<a href="#">CHEM 512 Applied Molecular Modeling</a>	O	R	R	O	O
<a href="#">CHEM 532 Advanced Analytical Chemistry</a>	O	R, A	O	O	O
<a href="#">CHEM 550 Introduction to Polymer Chemistry</a>	O	R	O	O	O
<a href="#">CHEM 580 Mechanical Properties of Plastics and Polymers</a>	O	R	O	O	O
<a href="#">CHEM 591 Topics in Chemistry</a>	R	R	O	O	O
<a href="#">CHEM 604 Advanced Organic Chemistry II</a>	R	R	O	O	O
<a href="#">CHEM 605 Physical Organic Chemistry</a>	O	R	O	O	O
<a href="#">CHEM 606 Advanced Spectroscopic Methods in Organic Chemistry</a>	O	R	O	R	O
<a href="#">CHEM 610 Applied Quantum Chemistry</a>	O	R	O	O	O
<a href="#">CHEM 611 Molecular Spectroscopy</a>	O	R	O	O	O
<a href="#">CHEM 612 Modern Statistical Mechanics: Fundamentals and Applications</a>	O	R	O	O	O
<a href="#">CHEM 615 Chemical Thermodynamics</a>	O	R	O	O	O
<a href="#">CHEM 616 Chemical Kinetics</a>	O	R	O	O	O
<a href="#">CHEM 620 Advanced Inorganic Chemistry I</a>	R	R, A	O	I	O
<a href="#">CHEM 621 Advanced Inorganic Chemistry II</a>	R	R	O	O	O
<a href="#">CHEM 630 Electroanalytical Chemistry</a>	O	R	O	R	O
<a href="#">CHEM 631 Separation Science</a>	R	R	O	O	O
<a href="#">CHEM 632 Chemometrics</a>	R	R	O	R	O
<a href="#">CHEM 633 Mass Spectrometry</a>	O	R	O	O	O
<a href="#">CHEM 634 Surface Science</a>	O	R	O	O	O
<a href="#">CHEM 635 Spectrochemical Analysis</a>	R	R	O	O	O
<a href="#">CHEM 690 Research Seminar in Chemistry</a>	O	R	R	R	O
<a href="#">CHEM 691 Topics in Chemistry</a>	R	R	O	O	O
<a href="#">CHEM 692 Chemistry Seminar Presentation</a>	A	A	A	A	O
<a href="#">CHEM 693 Chemistry Perspectives and Ethics</a>	O	O	O	O	I
<a href="#">CHEM 697 Directed Research - Oral Defense Semester</a>	R, A	R, A	R, A	R, A	R
<a href="#">CHEM 697 Directed Research - Final Defense Semester</a>	R, A	R, A	R, A	R, A	R
<a href="#">CHEM 697 Directed Research - Other Semesters</a>	R	R	R	R	R
<a href="#">CHEM 698 Investigations in Current Chemistry Literature</a>	R	R	O	O	O

Key:

I – Outcome introduced

R – Outcome reinforced

A – Outcome assessed

O – Outcome not addressed

Full Student Learning Objectives

Develop effective oral and written communication skills.

Demonstrate expertise (breadth and depth) in chemistry

Demonstrate appropriate ability to design and conduct experimental research

Demonstrate ability to analyze data critically and to design experiments independently.

Develop competency in the responsible conduct of research.