

UNR Chemistry Courses
 Changes to implement the UCCSN Common Course Numbering Initiative
 Effective beginning with Summer 2003 term

Old CHEM courses (2002-2003 catalog)	New CHEM courses (2003-2004 catalog)
100 MOLECULES AND LIFE IN THE MODERN WORLD (3+0) 3 credits	100 MOLECULES AND LIFE IN THE MODERN WORLD (3+1) 3 credits Introductory chemistry with emphasis on impacts on human society, environmental issues, energy sources, and life processes. Includes four laboratory experiments. Prerequisite: Core math requirement; or Corequisite: MATH 128 or higher Core math course.
101 GENERAL CHEMISTRY I (3+3 or 4+3) 4 or 5 credits	121 GENERAL CHEMISTRY I (3+3) 4 credits Fundamentals of chemistry including reaction stoichiometry, atomic structure, chemical bonding, molecular structure, states of matter, and thermochemistry. Prerequisite: Core math requirement (MATH 128 or higher recommended); or Corequisite: MATH 128 or higher Core math course. Credit allowed in only one of CHEM 121, 121A, 121R, or 201.
	121R GENERAL CHEMISTRY WITH RECITATION I (4+3) 5 credits Equivalent to CHEM 121 with additional recitation. Recommended for students with no high school chemistry or with ACT Math scores of 18 or below. Prerequisite: Core math requirement (MATH 128 or higher recommended); or Corequisite: MATH 128 or high Core math course. Credit allowed in only one of CHEM 121, 121A, 121R, or 201.
A101 GENERAL CHEMISTRY FOR AP STUDENTS (3+0) 3 credits	121A GENERAL CHEMISTRY LECTURE I (3+0) 3 credits Equivalent to lecture portion of CHEM 121. For Advanced Placement chemistry students. Prerequisite: CHEM 121L and high school Advanced Placement chemistry. Credit allowed in only one of CHEM 121, 121A, 121R, or 201.
L101 GENERAL CHEMISTRY LABORATORY (0+3) 1 credit	121L GENERAL CHEMISTRY LABORATORY I (0+3) 1 credit Equivalent to laboratory portion of CHEM 121. Restricted to high school Advanced Placement chemistry students. Credit not allowed in both CHEM 121L and CHEM 121, 121R, or 201.
102 GENERAL CHEMISTRY II (3+3 or 4+3) 4 or 5 credits	122 GENERAL CHEMISTRY II (3+3) 4 credits Fundamentals of chemistry including solutions, kinetics, equilibria, thermodynamics, electrochemistry, nuclear chemistry, and properties of inorganic and organic compounds. Prerequisites: CHEM 121 and MATH 128 or higher Core math course. Credit allowed in only one of CHEM 122, 122A, 122R, or 202.
	122R GENERAL CHEMISTRY WITH RECITATION II (4+3) 5 credits Equivalent to CHEM 122 with additional recitation. Prerequisites: CHEM 121 or 121R; and MATH 128 or higher Core math course. Credit allowed in only one of CHEM 122, 122A, 122R, or 202.
A102 GENERAL CHEMISTRY FOR AP STUDENTS (3+0) 3 credits	122A GENERAL CHEMISTRY LECTURE II (3+0) 3 credits Equivalent to lecture portion of CHEM 122. For Advanced Placement chemistry students. Prerequisites: CHEM 122L and high school Advanced Placement chemistry. Credit allowed in only one of CHEM 122, 122A, 122R, or 202.
L102 GENERAL CHEMISTRY LABORATORY (0+3) 1 credit	122L GENERAL CHEMISTRY LABORATORY II (0+3) 1 credit Equivalent to laboratory portion of CHEM 122. Restricted to high school Advanced Placement chemistry students. Prerequisite: CHEM 121L. Credit not allowed for both CHEM 122L and CHEM 122, 122R, or 202.

142 INTRODUCTORY ORGANIC CHEMISTRY (3+0) 3 credits	220A INTRODUCTORY ORGANIC CHEMISTRY (3+0) 3 credits Survey of the principles of carbon chemistry. Prerequisite: CHEM 121 (122 recommended). Credit allowed in only one of CHEM 220A, 241, 341.
143 INTRODUCTORY ORGANIC CHEMISTRY LABORATORY (0+3) 1 credit	220L INTRODUCTORY ORGANIC CHEMISTRY LABORATORY (0+3) 1 credit Techniques employed in the preparation, separation and identification of organic compounds. Prerequisite or corequisite: CHEM 220A or 242.
201 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS I (3+3) 4 credits	201 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS I (3+3) 4 credits Principles of chemistry including stoichiometry, atomic structure, chemical bonding, molecular structure, kinetic theory of gases, solutions, equilibrium, and thermochemistry. Prerequisite: 28 or above on the Math ACT examination and/or a year of high school chemistry. Prerequisite or corequisite: MATH 181. Credit allowed in only one of CHEM 121, 121A, 121R, or 201.
202 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS II (3+3) 4 credits	202 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS II (3+3) 4 credits Principles of chemistry including thermodynamics, electrochemistry, chemical kinetics, nuclear chemistry, metals and non-metals, coordination compounds, and properties of inorganic, organic, and biological molecules. Prerequisites: CHEM 201 (CHEM 121 acceptable with a grade of A or B); and MATH 181. Credit allowed in only one of CHEM 122, 122A, 122R, or 202.
291 SCIENTIFIC GLASSBLOWING (0+3) 1 credit	285 SCIENTIFIC GLASSBLOWING (0+3) 1 credit Training in glassblowing skills needed by majors in chemistry and physics.
330 ANALYTICAL CHEMISTRY (2+6) 4 credits	330 ANALYTICAL CHEMISTRY (2+6) 4 credits Principles and techniques of quantitative analysis including an introduction to instrumental methods. Prerequisite: CHEM 122 or 202.
343 ORGANIC CHEMISTRY (3+0) 3 credits	241 ORGANIC CHEMISTRY I (3+0) 3 credits Introduction to the chemistry of carbon compounds; functional groups; relationships among molecular structure, properties, and reactivity; and biological relevance. For life and environmental sciences majors. Prerequisite: CHEM 122 or 202. Credit allowed in only one of CHEM 220A, 241, or 341. 341 ORGANIC CHEMISTRY FOR SCIENTISTS AND PROFESSIONALS I (3+0) 3 credits Detailed treatment of organic molecules, simple functional groups, stereochemistry, reaction mechanisms, introductory synthesis, and spectroscopy. For chemistry, biochemistry, molecular biology, and other pre-professional majors. Prerequisite: CHEM 202 (CHEM 122 acceptable). Credit allowed in only one of CHEM 220A, 241, or 341.

<p>344 ORGANIC CHEMISTRY (3+0) 3 credits</p>	<p>242 ORGANIC CHEMISTRY II (3+0) 3 credits Continuation of CHEM 241, with emphasis on additional functional groups, fundamental reaction mechanisms, and biomolecules. For life and environmental sciences majors. Prerequisite: CHEM 241. Credit not allowed in both CHEM 242 and 342.</p> <p>342 ORGANIC CHEMISTRY FOR SCIENTISTS AND PROFESSIONALS II (3+0) 3 credits Continuation of CHEM 341, with emphasis on complex functional groups, detailed reaction mechanisms, multistep syntheses, and molecules relevant to biology and materials science. Prerequisite: CHEM 341, or CHEM 241 with a grade of A or B. Credit not allowed in both CHEM 242 and 342.</p>
<p>345 ORGANIC CHEMISTRY LABORATORY (0+6) 2 credits</p>	<p>345 ORGANIC CHEMISTRY LABORATORY (0+6) 2 credits Introduction to laboratory techniques, synthetic methods, and identification of organic compounds. Co- or prerequisite: CHEM 342; or Prerequisite: CHEM 242. Credit allowed in only one of CHEM 345 or 347.</p>
<p>347-348 LABORATORY TECHNIQUES OF ORGANIC CHEMISTRY (0+6) 2 credits each</p>	<p>347 LABORATORY TECHNIQUES OF ORGANIC CHEMISTRY I (0+6) 2 credits Laboratory techniques and principles of the synthesis, purification, and characterization of organic compounds. For chemistry and other pre-professional majors. Prerequisite or corequisite: CHEM 341; or Prerequisite: CHEM 242. Credit allowed in only one of CHEM 345 or 347.</p> <p>348 LABORATORY TECHNIQUES OF ORGANIC CHEMISTRY II (0+6) 2 credits Continuation of CHEM 347 with emphasis on synthetic techniques and spectroscopic characterization. Prerequisite: CHEM 347. Prerequisite or corequisite: CHEM 342; or Prerequisite: CHEM 242.</p>
<p>353 PHYSICAL CHEMISTRY I (3+0) 3 credits</p>	<p>421 PHYSICAL CHEMISTRY I (3+0) 3 credits Fundamental principles including thermodynamics, phase equilibria, non-ideal systems, electrochemistry, and introductory statistical mechanics. Prerequisites: CHEM 342 (CHEM 242 acceptable), PHYS 181 (PHYS 152 acceptable), MATH 182 (MATH 283 recommended). Credit not allowed in both CHEM 421 and CHEM 425.</p>
<p>354 PHYSICAL CHEMISTRY II (3+0) 3 credits</p>	<p>422 PHYSICAL CHEMISTRY II (3+0) 3 credits Fundamental principles including quantum mechanics, spectroscopy, and kinetics and dynamics of chemical reactions. Prerequisites: CHEM 421; MATH 182 (MATH 285 recommended).</p>
<p>355 PHYSICAL CHEMISTRY LABORATORY (0+9) 3 credits</p>	<p>423 PHYSICAL CHEMISTRY LABORATORY (1+6) 3 credits Training in laboratory techniques provided by experimental verification of the principles of physical chemistry. Prerequisites: CHEM 330 and 421. Pre- or corequisite: CHEM 422.</p>
<p>357 BIOPHYSICAL CHEMISTRY (3+0) 3 credits</p>	<p>425 BIOPHYSICAL CHEMISTRY (3+0) 3 credits Fundamental principles of physical chemistry with biological and biochemical applications. Prerequisites: CHEM 242 or 342; PHYS 152 or 181; and MATH 182. Credit not allowed in both CHEM 421 and 425.</p>
<p>387 CHEMICAL LITERATURE AND UNDERGRADUATE COLLOQUIUM (1+0) 1 credit</p>	<p>[deleted; substitute CHEM 392 or CHEM 490]</p>

391 SPECIAL PROBLEMS 1 to 3 credits	392 SPECIAL TOPICS IN CHEMISTRY 1-3 credits Laboratory or lecture course in area not covered in other courses. Maximum of 6 credits. Credit allowed toward chemistry major or minor with departmental permission only.
415, 615 ADVANCED INORGANIC CHEMISTRY (3+0) 3 credits	431, 631 ADVANCED INORGANIC CHEMISTRY (3+0) 3 credits Atomic structure; types of bonding; relationships among molecular structure and symmetry, physical properties, and reactivities of the elements and their compounds. Prerequisite or co-requisite: CHEM 422.
416 INORGANIC CHEMISTRY LABORATORY (0+3) 1 credit	432 INORGANIC CHEMISTRY LABORATORY (0+3) 1 credit Laboratory techniques in synthesis and characterization of inorganic compounds. Prerequisites: CHEM 330, and CHEM 345 or 348. Pre- or corequisite: CHEM 431. Credit allowed in only one of CHEM 432 or 435.
434, 634 INSTRUMENTAL ANALYSIS (2+3) 3 credits	455,655 INSTRUMENTAL ANALYSIS (2+3) 3 credits Critical examination of the process of quantitative chemical measurement entailing a systematic treatment of instrument design and instrumental methods. Prerequisite: CHEM 330. Pre- or corequisite: CHEM 423.
442, 642 ADVANCED ORGANIC CHEMISTRY (3+0) 3 credits	442,642 ADVANCED ORGANIC CHEMISTRY (3+0) 3 credits Organic reactions not generally covered in introductory courses in organic chemistry. Emphasis on both synthetic utility and reaction mechanisms. Prerequisites: CHEM 342 or CHEM 443; and CHEM 422.
443, 643 ORGANIC SPECTROSCOPY AND STRUCTURE (2+0) 2 credits	443,643 ORGANIC SPECTROSCOPY AND STRUCTURE (2+0) 2 credits Constitutional and stereochemical structure from spectroscopic methods (mass spectrometry, nuclear magnetic resonance, infrared, ultraviolet). Prerequisite: CHEM 342 (CHEM 242 acceptable).
444, 644 ORGANIC STRUCTURE DETERMINATION LABORATORY (0+3 or 6) 1 or 2 credits	444, 644 ORGANIC STRUCTURE DETERMINATION LABORATORY (0+3 or 6) 1 or 2 credits Laboratory identification of unknown organic compounds using spectroscopic instruments (IR, NMR, UV, mass spectrometry); microtechniques; separation of mixtures (GLC, TLC, HPLC). Prerequisite: CHEM 345 or 348. Corequisite: CHEM 443 or 643.
450, 650 ADVANCED PHYSICAL CHEMISTRY (3+0) 3 credits	450,650 ADVANCED PHYSICAL CHEMISTRY (3+0) 3 credits Selected topics including quantum chemistry, kinetics, molecular spectroscopy, and statistical thermodynamics. Prerequisites: CHEM 422, MATH 285.
451, 651 THE ELEMENTARY PHYSICAL CHEMISTRY OF MACROMOLECULES (3+0) 3 credits	451, 651 THE ELEMENTARY PHYSICAL CHEMISTRY OF MACROMOLECULES (3+0) 3 credits Elementary physical chemistry and physical characterization methods applicable to synthetic and biological macromolecules in solution and in the bulk phase. Prerequisite: 425, or Pre- or corequisite: CHEM 422.
461, 661 CHEMICAL SYNTHESIS (1+6) 3 credits	435,635 CHEMICAL SYNTHESIS (1+6) 3 credits Advanced laboratory techniques used in inorganic and organic synthesis. Prerequisites: CHEM 330; CHEM 345 or 348. Pre- or corequisite: CHEM 431 or 631. Credit allowed in only one of CHEM 432 or 435.
462, 662 POLYMER CHEMISTRY (3+0) 3 credits	449,649 POLYMER CHEMISTRY (3+0) 3 credits Synthesis, characterization, morphology, bulk and solution properties of polymers; polymerization mechanisms. Prerequisites: CHEM 342 (CHEM 242 acceptable) and CHEM 422.
480, 680 INDEPENDENT STUDY 1 to 3 credits	490, 690 INDEPENDENT STUDY IN CHEMISTRY 1 to 3 credits Intensive study of a special problem. Maximum of 6 credits. Credit allowed toward chemistry major or minor with departmental permission only.

497 SENIOR THESIS I (0+9) 3 credits	495 SENIOR THESIS IN CHEMISTRY I (0+9) 3 credits Original directed research presented in oral and written form. Prerequisites: three years of college chemistry and permission of instructor. (Major capstone course.)
498 SENIOR THESIS II (0+9) 3 credits	496 SENIOR THESIS IN CHEMISTRY II (0+9) 3 credits Original directed research presented in oral and written form. Prerequisite: CHEM 495 with A or B grade and permission of instructor. (Major capstone course.)