

CHEMISTRY (CHEM)

CHEM 101 Career Opportunities in Chemistry

Description: Introduction to chemistry careers and faculty research interests in the Department of Chemistry. This course is required for all chemistry majors (B.S. and B.A.) but is open to all students interested in learning about the chemistry program and its relationship to careers.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Format: LEC

CHEM 105 Chemistry in Context I

Prerequisites: MATH 101, or placement into MATH 102 or above.

Notes: Credit toward the degree may be earned in only one of: CHEM 105, 109, 111, 113 or 195. Students planning to take CHEM 251 and 252, or CHEM 261 and 262, should register for CHEM 109 and 110, or CHEM 113 and 114 (the general chemistry sequence). The first part of a two-semester sequence, along with CHEM 106, to constitute the "Chemistry in Context" series.

Description: The extraordinary chemistry of ordinary things. The chemical model of solids, liquids, gases, molecules, and salts. How these models are used to explore chemical aspects of biological, social, or economic situation.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Format: LEC

Prerequisite for: AGRO 327, HORT 327, TLMT 327; ASCI 240; CHEM 106; NRES 319

ACE: ACE 4 Science

CHEM 106 Chemistry in Context II

Prerequisites: CHEM 105

Notes: Continuation of CHEM 105. Will not serve as a prerequisite for any chemistry course. Students planning to take CHEM 251-252 or CHEM 263-264, should take CHEM 109-110 or CHEM 113-114 (general chemistry sequence). The second part of a two-semester sequence, along with CHEM 105, to constitute the "Chemistry in Context" series.

Description: How organic chemistry and biochemistry complement one another. Chemical aspects of biological, social, or economic situations.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Format: LEC

Prerequisite for: ASCI 320

CHEM 109 General Chemistry I

Prerequisites: MATH 103 or a Math Placement Test score for MATH 104 or 106

Notes: Credit toward the degree may be earned in only one of: CHEM 105, 109, 111, 113 or 195.

Description: Lecture and laboratory serving as an introduction to chemical reactions, the mole concept, properties of the states of matter, atomic structure, periodic properties, chemical bonding, and molecular structure.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Format: LEC

Prerequisite for: AGRO 327, HORT 327, TLMT 327; AGRO 455, AGRO 855, NRES 455, NRES 855, SOIL 455; ASCI 240; BIOC 205; BSEN 326, CIVE 326; BSEN 326H, CIVE 326H; CHEM 110; CHEM 191H; CHEM 192H; CHME 114; CHME 202; FDST 205; FDST 280; FORS 300; FORS 411; GEOL 210; GEOL 410; GEOL 418, GEOL 818, NRES 419, NRES 819, WATS 418; GEOL 418L, GEOL 818L, NRES 419L, NRES 819L, WATS 418L; MATL 260; MATL 360; NRES 319

ACE: ACE 4 Science

CHEM 110 General Chemistry II

Prerequisites: CHEM 109

Description: Lecture and laboratory serving as an introduction to intermolecular forces, kinetics, chemical equilibrium, thermodynamics, and electrochemistry.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Format: LEC

Prerequisite for: AGRO 455, AGRO 855, NRES 455, NRES 855, SOIL 455; ASCI 340; BSEN 244; BSEN 326, CIVE 326; BSEN 326H, CIVE 326H; BSEN 355; CHEM 221; CHEM 251; CHEM 255; CHEM 261; CHEM 291H; FDST 205; FORS 300; GEOL 418, GEOL 818, NRES 419, NRES 819, WATS 418; GEOL 418L, GEOL 818L, NRES 419L, NRES 819L, WATS 418L

ACE: ACE 4 Science

CHEM 111 Chemistry for Engineering and Technology

Prerequisites: Math Placement Test score for MATH 106.

Notes: Credit towards the degree may be earned in only one: CHEM 105, 109, 111, 113 or 195. Not open to chemical engineering majors.

Description: A one semester introduction to the fundamentals of chemistry for engineering students.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Format: LEC

Prerequisite for: BSEN 326, CIVE 326; BSEN 326H, CIVE 326H; BSEN 355; CHEM 191H; CHEM 192H; GEOL 418, GEOL 818, NRES 419, NRES 819, WATS 418; MATL 260; MATL 360

CHEM 113 Fundamental Chemistry I**Prerequisites:** Math Placement Test score for MATH 106.**Notes:** Credit towards the degree may be earned in only one: CHEM 105, 109, 111, 113 or 195.**Description:** Fundamentals of chemistry for students in physical sciences or chemical engineering. Includes atomic and molecular structure, chemical bonding, states of matter, solutions, and acid-base reactions.

Intended for students who plan to take upper-level courses in chemistry.

Credit Hours: 4**Max credits per semester:** 4**Max credits per degree:** 4**Format:** LEC**Prerequisite for:** BIOC 205; BSEN 326, CIVE 326; BSEN 326H, CIVE 326H; CHEM 110; CHEM 114; CHEM 192H; CHME 114; CHME 202; GEOL 210; GEOL 410; GEOL 418, GEOL 818, NRES 419, NRES 819, WATS 418;

GEOL 418L, GEOL 818L, NRES 419L, NRES 819L, WATS 418L

ACE: ACE 4 Science**CHEM 114 Fundamental Chemistry II****Prerequisites:** CHEM 113.**Notes:** Parallel: CHEM 221 is the associated laboratory course.**Description:** Chemical kinetics, oxidation-reduction reactions and electrochemistry, ionic solution equilibria, thermodynamic concepts, and chemistry of selected elements.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** BSEN 244; BSEN 355; CHEM 251; CHEM 255; CHEM 261; CHEM 291H; GEOL 418, GEOL 818, NRES 419, NRES 819, WATS 418; GEOL 418L, GEOL 818L, NRES 419L, NRES 819L, WATS 418L**CHEM 131 The Science of Food****Crosslisted with:** FDST 131, NUTR 131**Description:** General scientific concepts in biology, chemistry, and physics using food as a model. What food is from both chemical and nutritional perspectives, and the fate of food from when it leaves the farm to when it becomes a part of the individual. Assists students in making intelligent decisions about many food related controversial issues (e.g., food irradiation, food additives, health foods).**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** FDST 131L; FDST 205; FDST 280**ACE:** ACE 4 Science**CHEM 191H Freshman Honors Chemistry I****Prerequisites:** Freshman standing; Good standing in the University Honors Program; CHEM 109, 111 or 113 parallel.**Description:** Seminar in which special topics in chemistry are taught at a level appropriate for the student population.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Format:** LEC**CHEM 192H Freshman Honors Chemistry II****Prerequisites:** Freshman standing; Good standing in the University Honors Program; CHEM 109, 111 or 113 with a minimum grade of "B"; CHEM 110 or 114 parallel.**Description:** Seminar in which special topics in chemistry are taught at a level appropriate for the student population.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Format:** LEC**CHEM 195 Today's Chemistry in Education****Description:** Interactive, practical approach to learning chemistry and its relationship to today's world. Intended for elementary and middle-level education majors. Uses the Operation Chemistry model to help students learn the essential chemistry content and teaching practices for elementary-level classrooms.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**CHEM 221 Elementary Quantitative Analysis****Prerequisites:** CHEM 110 or parallel CHEM 114**Notes:** This is the laboratory course for CHEM 114 as well as a stand-alone course in quantitative analysis. Credit may not be earned in both CHEM 221 and 116.**Description:** Introduction to principles of quantitative analytical chemistry, including ionic equilibria and solution stoichiometry. Lab instruction includes titrimetry, gravimetry, separations, and use of pH meter and spectrophotometer.**Credit Hours:** 4**Max credits per semester:** 4**Max credits per degree:** 4**Format:** LEC**Prerequisite for:** AGRO 455, AGRO 855, NRES 455, NRES 855, SOIL 455; CHEM 292H**CHEM 251 Organic Chemistry I****Prerequisites:** CHEM 110 or 114 with a minimum grade of C.**Notes:** It is suggested that CHEM 253 be taken parallel with CHEM 251. CHEM 251 and 252, with their corresponding labs of CHEM 253 and 254, form a continuous basic course in organic chemistry.**Description:** Chemistry of carbon compounds. Applications to the biological sciences, agriculture and pre-professional programs including premedical and pre-dental. Emphasizes basic principles.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** AGRO 455, AGRO 855, NRES 455, NRES 855, SOIL 455; ASCI 320; BIOS 302; BIOS 312; BIOS 313; BIOS 314; BIOS 326; BIOS 443; BIOS 843, VBMS 843, MBIO 443; CHEM 252; CHEM 253; CHEM 254; CHEM 292H; VBMS 403

CHEM 252 Organic Chemistry II**Prerequisites:** CHEM 251 and 253.**Description:** Chemistry of carbonyl compounds. Aspects of aromatic chemistry, heterocycles, carbohydrates and nitrogen compounds, with some emphasis on the organic compounds found in nature.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** CHEM 254**CHEM 253 Organic Chemistry I Laboratory****Prerequisites:** CHEM 251 or parallel.**Notes:** CHEM 221 recommended. Shares a quiz section with CHEM 251 and normally accompanies it.**Description:** Basic techniques of organic chemistry. Structure, identification, physical properties of compounds, molecular modeling, and introduction to the spectroscopic characteristics of organic compounds.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Format:** LAB**Prerequisite for:** CHEM 252; CHEM 254**CHEM 254 Organic Chemistry II Laboratory****Prerequisites:** CHEM 251, 253; CHEM 252 or parallel.**Notes:** Shares a quiz section with CHEM 252 and normally accompanies it.**Description:** Synthesis of representative organic compounds. Qualitative analysis of organic compounds. Naturally occurring compounds.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Format:** LAB**CHEM 255 Biological Organic Chemistry****Prerequisites:** CHEM 110 or 114**Notes:** This course should not be taken by majors in Chemistry or Chemical Engineering.**Description:** One-semester organic chemistry course in which biological molecules and biochemical reactions will be used to explain and illustrate the central concepts of organic chemistry.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** BIOS 302; BIOS 312; BIOS 313; BIOS 314; BIOS 326; BIOS 443, BIOS 843, VBMS 843, MBIO 443**CHEM 257 Biological Organic Chemistry Laboratory****Prerequisites:** CHEM 255 or concurrent**Description:** Basic techniques in organic chemistry with a focus on biomolecules. Structure, identification, and physical properties of compounds, accompanied with molecular modeling and introduction to spectroscopy.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Format:** LAB**CHEM 261 Organic Chemistry****Prerequisites:** CHEM 110 or 114 with minimum grades of C.**Notes:** It is suggested that CHEM 263 be taken parallel with CHEM 261. Students having credit in CHEM 251 or its equivalent may not receive credit in CHEM 261.**Description:** CHEM 261 and 262, together with lab courses 263 and 264, form a continuous basic course covering the important compounds of carbon.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** BIOS 302; BIOS 312; BIOS 313; BIOS 314; BIOS 326; BIOS 443, BIOS 843, VBMS 843, MBIO 443; CHEM 252; CHEM 254; CHEM 262; CHEM 263; CHEM 263A; CHEM 292H**CHEM 262 Organic Chemistry****Prerequisites:** CHEM 261**Notes:** It is suggested that CHEM 264 be taken parallel with CHEM 262.**Description:** Continuation of CHEM 261.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** CHEM 254; CHEM 264; CHEM 264A**CHEM 263 Organic Chemistry Laboratory****Prerequisites:** CHEM 261 or parallel.**Notes:** It is suggested that CHEM 263 be taken parallel with CHEM 261.**Description:** Students following the professional curriculum in chemistry should elect this course.**Credit Hours:** 2**Max credits per semester:** 2**Max credits per degree:** 2**Format:** LEC**Prerequisite for:** CHEM 252; CHEM 254; CHEM 264; CHEM 264A**CHEM 263A Organic Chemistry Laboratory****Prerequisites:** CHEM 261 or parallel.**Notes:** It is suggested that CHEM 263A be taken parallel with CHEM 261.**Description:** Students having credit in CHEM 251 and CHEM 253 or its equivalent should elect this course.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Format:** LEC**Prerequisite for:** CHEM 252; CHEM 254; CHEM 264A**CHEM 264 Organic Chemistry Laboratory****Prerequisites:** CHEM 262 or parallel; CHEM 263.**Notes:** It is suggested that CHEM 264 be taken parallel with CHEM 262.**Description:** Continuation of CHEM 263. Lab work in qualitative organic analysis.**Credit Hours:** 2**Max credits per semester:** 2**Max credits per degree:** 2**Format:** LAB

CHEM 264A Organic Chemistry Laboratory**Prerequisites:** CHEM 262 or parallel; CHEM 263 or CHEM 263A.**Notes:** It is suggested that CHEM 264A be taken parallel with CHEM 262.**Description:** Continuation of CHEM 263A.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Format:** LEC**CHEM 291H Honors: Sophomore Chemistry I****Prerequisites:** Sophomore standing; Good standing in the University Honors Program; CHEM 110 or 114 with a minimum grade of "B"; CHEM 221 or 251 or 261 parallel.**Description:** Seminar in which special topics in chemistry are taught at a level appropriate for the student population.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Format:** LEC**CHEM 292H Honors: Sophomore Chemistry II****Prerequisites:** Good standing in the University Honors Program; CHEM 221 or 251 or 261 with a minimum grade of "B"; CHEM 251 or 252 or 262 parallel.**Description:** Seminar in which special topics in chemistry are taught at a level appropriate for the student population.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Format:** LEC**CHEM 396 Independent Study****Credit Hours:** 1-12**Min credits per semester:** 1**Max credits per semester:** 12**Max credits per degree:** 12**Format:** IND**CHEM 399 Undergraduate Research in Chemistry****Prerequisites:** Permission.**Description:** Open to undergraduates desiring to undertake a special research project under the direction of a member of the departmental faculty. The grade will be awarded following the submission of a written progress and/or final report.**Credit Hours:** 1-12**Min credits per semester:** 1**Max credits per semester:** 12**Max credits per degree:** 12**Format:** IND**CHEM 421 Analytical Chemistry****Crosslisted with:** CHEM 821**Prerequisites:** CHEM 471/871 or CHEM 481/881; parallel CHEM 423/823**Description:** Chemical and physical properties applied to quantitative chemical analysis. Solution equilibria, stoichiometry, and instrumental theory and techniques.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** CHEM 423, CHEM 823; CHEM 824; CHEM 825A; CHEM 825B; CHEM 825D; CHEM 825E; CHEM 825G; CHEM 825J; CHEM 991A**ACE:** ACE 10 Integrated Product**CHEM 423 Analytical Chemistry Laboratory****Crosslisted with:** CHEM 823**Prerequisites:** CHEM 421/821 or parallel.**Notes:** It is suggested that CHEM 423 be taken parallel with CHEM 421.**Description:** Lab designed to accompany CHEM 421/821. Applications of analytical chemical principles to laboratory problems.**Credit Hours:** 2**Max credits per semester:** 2**Max credits per degree:** 2**Format:** LEC**Prerequisite for:** CHEM 421, CHEM 821**CHEM 431 Structure and Metabolism****Crosslisted with:** BIOC 431, BIOC 831, BIOS 431, BIOS 831, CHEM 831**Prerequisites:** LIFE 120 with a grade of C or better; CHEM 252 or CHEM 262 with a grade of C or better.**Notes:** BIOS 206 or AGRO 215 is recommended.**Description:** Structure and function of proteins, nucleic acids, carbohydrates and lipids; nature of enzymes; major metabolic pathways of catabolism; and biochemical energy production.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Offered:** FALL/SPR**Prerequisite for:** AGRO 434, BIOC 434, BIOS 434, CHEM 434, AGRO 834, BIOC 834, BIOS 834, CHEM 834; AGRO 810, BIOC 810, HORT 810; ASCI 820; ASCI 917; ASCI 925, NUTR 925; ASCI 926, NUTR 926; ASCI 927, NUTR 927; BIOC 305; BIOC 432, BIOC 832, BIOS 432, CHEM 432, CHEM 832, BIOS 832; BIOC 433, BIOC 833, BIOS 433, BIOS 833, CHEM 433, CHEM 833; BIOC 439, BIOC 839, BIOS 439, BIOS 839; BIOS 879; BIOS 950, VBMS 950; FDST 470, FDST 870; NUTR 450; NUTR 455; NUTR 820; NUTR 821; VBMS 410; VBMS 805**CHEM 432 Metabolism and Biological Information****Crosslisted with:** BIOC 432, BIOC 832, BIOS 432, CHEM 832, BIOS 832**Prerequisites:** BIOC 431/831 with a grade of C or better; BIOS 206 or AGRO 215 with a grade of C or better.**Notes:** Continuation of BIOC 431/831.**Description:** Major metabolic pathways of anabolism, structural and biochemical aspects of biological information flow and use in biotechnology.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** ASCI 949, BIOC 949, BIOS 949, NUTR 949; BIOC 435; BIOC 932, BIOS 932, CHEM 932; BIOC 933, BIOS 933, CHEM 933; BIOC 934, BIOS 934, CHEM 934; BIOC 935, BIOS 935, CHEM 935; BIOC 992K, CHEM 992K; BIOC 998; BIOS 950, VBMS 950; VBMS 919; VBMS 951

CHEM 433 Biochemistry Laboratory**Crosslisted with:** BIOC 433, BIOC 833, BIOS 433, BIOS 833, CHEM 833**Prerequisites:** BIOC 431/831 or parallel; or CHEM 435/835.**Description:** Introduction to techniques used in biochemical and biotechnology research, including measurement of pH, spectroscopy, analysis of enzymes, chromatography, fractionation of macromolecules, electrophoresis, and centrifugation.**Credit Hours:** 2**Max credits per semester:** 2**Max credits per degree:** 2**Format:** LEC**Offered:** FALL/SPR**Prerequisite for:** BIOC 437, BIOC 837, BIOS 437, BIOS 837; BIOC 898; CHEM 498**CHEM 434 Plant Biochemistry****Crosslisted with:** AGRO 434, BIOC 434, BIOS 434, AGRO 834, BIOC 834, BIOS 834, CHEM 834**Prerequisites:** BIOC/BIOS/CHEM 431/831.**Description:** Biochemical metabolism unique to plants. Relationships of topics previously acquired in general biochemistry to biochemical processes unique to plants. Biochemical mechanisms behind physiological processes discussed in plant or crop physiology.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**CHEM 435 Chemical Biology****Crosslisted with:** CHEM 835**Prerequisites:** CHEM 252 or 262, and CHEM 221**Notes:** Credit toward the undergraduate or graduate degree cannot be earned in both CHEM 435/835 and 431/831 and/or CHEM 432/832 or their equivalents.**Description:** Fundamentals of chemical biology with an emphasis on the underlying principles of biomolecular structures, macromolecular-small molecule interactions, including mechanistic aspects of enzymes and cofactors, use of modified enzymes to alter biochemical pathways, and the use of chemical tools for understanding biological processes.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** BIOC 433, BIOC 833, BIOS 433, BIOS 833, CHEM 433, CHEM 833**CHEM 441 Inorganic Chemistry****Crosslisted with:** CHEM 841**Prerequisites:** CHEM 221 with a minimum grade of C; CHEM 252 or 262.**Notes:** CHEM 443 is recommended to be taken parallel.**Description:** CHEM 441/841 and the accompanying lab course, CHEM 443/843, constitute a basic course in inorganic chemistry. Structure, bonding, properties, and reactions of inorganic compounds with emphasis on the relationships and trends that are embodied in the periodic table of the elements.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Format:** LEC**Prerequisite for:** CHEM 421, CHEM 821; CHEM 845**ACE:** ACE 10 Integrated Product**CHEM 443 Inorganic Chemistry Laboratory****Crosslisted with:** CHEM 843**Prerequisites:** CHEM 441 or parallel.**Notes:** It is suggested that CHEM 443 be taken in parallel with CHEM 441.**Description:** Introduction to typical inorganic chemistry laboratory techniques through the preparation and characterization of inorganic compounds.**Credit Hours:** 2**Max credits per semester:** 2**Max credits per degree:** 2**Format:** LEC**Prerequisite for:** CHEM 845**CHEM 463 Advanced Organic Preparations****Crosslisted with:** CHEM 863**Prerequisites:** CHEM 252 and CHEM 254.**Notes:** For students who wish additional laboratory work in organic chemistry.**Credit Hours:** 1-5**Min credits per semester:** 1**Max credits per semester:** 5**Max credits per degree:** 5**Format:** LAB**CHEM 471 Physical Chemistry****Crosslisted with:** CHEM 871**Prerequisites:** CHEM 221; MATH 107; and PHYS 142 or 212.**Notes:** Credit may not be earned in both CHEM 471/871 and CHEM 481/881.**Description:** Conceptual and mathematical foundations of classical and statistical thermodynamics. Applications of thermodynamics to phase and chemical equilibria. Thermodynamics of solutions of small molecules and of polymers. Biological applications of thermodynamics. Introduction to chemical and biochemical spectroscopy.**Credit Hours:** 4**Max credits per semester:** 4**Max credits per degree:** 4**Format:** LEC**Prerequisite for:** BIOC 486, BIOC 886, BIOS 486, BIOS 886, CHEM 486, CHEM 886; CHEM 421, CHEM 821**CHEM 481 Physical Chemistry I****Crosslisted with:** CHEM 881**Prerequisites:** CHEM 221 with grade of at least C; MATH 208; PHYS 212.**Notes:** Credit may not be earned in both CHEM 471/871 and CHEM 481/881.**Description:** CHEM 481/881 and 482/882 with accompanying lab 484/884 form a continuous basic course in physical chemistry for students interested in chemistry as a profession. Introduction to quantum mechanics and statistical mechanics; application to problems in atomic and molecular structure and to spectroscopy.**Credit Hours:** 4**Max credits per semester:** 4**Max credits per degree:** 4**Format:** LEC**Prerequisite for:** BIOC 486, BIOC 886, BIOS 486, BIOS 886, CHEM 486, CHEM 886; CHEM 482, CHEM 882; CHEM 484, CHEM 884; CHEM 484A, CHEM 884A; CHEM 991J; PHYS 422, PHYS 822, ECEN 422, ECEN 822

CHEM 482 Physical Chemistry II

Crosslisted with: CHEM 882

Prerequisites: CHEM 481/881

Notes: This course should parallel CHEM 484/884. Continuation of CHEM 481/881.

Description: Thermodynamics and statistical mechanics and their application to the study of solids, liquids, gases, solutions, phase equilibria, and chemical equilibria. Chemical kinetics and reaction dynamics.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Format: LEC

Prerequisite for: CHEM 484, CHEM 884; CHEM 484A, CHEM 884A; CHEM 845; CHEM 987A; CHEM 987B; CHEM 991J; CHME 925

CHEM 484 Physical Chemical Measurements

Crosslisted with: CHEM 884

Prerequisites: CHEM 481/881; CHEM 482/882 or parallel.

Notes: It is suggested that CHEM 484/884 be taken in parallel with CHEM 482/882.

Description: Applications of physical measurements and principles to study chemical systems and processes.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Format: LEC

CHEM 484A Physical Chemical Measurements

Crosslisted with: CHEM 884A

Prerequisites: CHEM 481/881; CHEM 482/882 or parallel.

Notes: It is suggested that CHEM 484A/884A be taken in parallel with CHEM 482/882.

Credit Hours: 2

Max credits per semester: 2

Max credits per degree: 2

Format: LEC

CHEM 486 Advanced Topics in Biophysical Chemistry

Crosslisted with: BIOC 486, BIOC 886, BIOS 486, BIOS 886, CHEM 886

Prerequisites: CHEM 471/871 or CHEM 481/881.

Description: Applications of thermodynamics to biochemical phenomena, optical properties of proteins and polynucleotides, and kinetics of rapid reactions.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Format: LEC

CHEM 498 Undergraduate Research

Prerequisites: BIOC 433 and permission

Description: Research on a specific biochemical project under the supervision of a biological chemistry faculty member.

Credit Hours: 1-6

Min credits per semester: 1

Max credits per semester: 6

Max credits per degree: 6

Format: LEC