CHEMISTRY (CHM)

CHM 101. Chemistry and Society. 3 Credit Hours.
The basic principles of chemistry for the non-science major with an emphasis on understanding the chemistry of the world around us, especially as it pertains to the choices we make as consumers and as a society. Integrated themes include energy, the environment, food and nutrition, health and personal care, and other contemporary societal issues.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CHM 103. Chemistry for the Health Sciences I. 3 Credit Hours.
Essentials of chemistry as they apply to biological systems
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CHM 104. Chemistry for the Health Sciences II. 3 Credit Hours.
A continuation of CHM 103, with emphasis on organic and biological chemistry, including biochemical processes and metabolism. Lecture, 3 hours.
Prerequisite: CHM 103 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 105. Chemistry for the Health Sciences I (Laboratory). 1 Credit Hour.
Designed for those students in CHM 103 requiring a laboratory course. Laboratory, 3 hours.
Pre/Corequisite: CHM 103 with a grade of C- or higher.
Components: LAB.
Grading: GRD.
Typically Offered: Fall.

CHM 106. Chemistry for the Health Sciences II (Laboratory). 1 Credit Hour.
Designed for those students in CHM 104 requiring a laboratory course. Laboratory, 3 hours.
Pre/Corequisite: CHM 104 with a grade of C- or higher.
Components: LAB.
Grading: GRD.
Typically Offered: Spring.

CHM 110. Chemical Problem Solving. 3 Credit Hours.
Chemical problem solving strategies to prepare students for more advanced studies in the sciences. Focusing on basic concepts in chemistry, chemical problem solving, and mathematical preparation for future studies.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 111. Principles of Chemistry I. 3 Credit Hours.
Fundamental principles of chemical science.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 112. Principles of Chemistry II. 3 Credit Hours.
Continuation of CHM 111. Lecture, 3 hours.
Prerequisite: CHM 111 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 113. Chemistry Laboratory I. 1 Credit Hour.
Basic laboratory techniques in chemistry.
Corequisite: CHM 121 with a grade of C- or higher.
Components: LAB.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 114. Chemistry Laboratory II. 1 Credit Hour.
Continuation of CHM 113. Intermediate laboratory techniques and quantitative analysis. To accompany CHM 112. Laboratory, 3 hours.
Corequisite: CHM 112 Or CHM 221 And with a grade of C- or higher.
Components: LAB.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 115. Introductory Biology/Chemistry Laboratory I. 1 Credit Hour.
Integrated biology and chemistry laboratory exercises for first year students.
Co-req: CHM 121 and BIL 150.
Components: LAB.
Grading: GRD.
Typically Offered: Fall.

CHM 121. Principles of Chemistry. 4 Credit Hours.
Fundamental principles of chemical science for studies in the discipline.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 151. Chemistry for Engineers. 3 Credit Hours.
Fundamental principles of chemistry for engineering students. Not recommended for students that plan to enter Medical School. Lecture, 3 hours.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 153. Chemistry Laboratory for Engineers. 1 Credit Hour.
An introductory laboratory course to accompany CHM 151. The techniques of chemistry for engineering students.
Corequisite: CHM 151 with a grade of C- or higher AND freshman or sophomore standing OR permission of the instructor.
Components: LAB.
Grading: GRD.
Typically Offered: Spring.

CHM 160. Being a Scientist. 3 Credit Hours.
Although for thousands of years humanity has been curious to know the inner workings of the Nature surrounding them, science, as we know it, has emerged as a tool in this context only during the last two centuries. In this course, development of a few important concepts in physics, chemistry and biology will be discussed to illustrate what is needed to be a successful scientist. It will attempt to interlink concepts, personalities, geography and the history. Familiarity with the growth and the current status of science should help young minds to build a world where peace, prosperity and good health prevail.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 201. Organic Chemistry I (Lecture). 3-4 Credit Hours.
The chemistry of carbon compounds. Required of chemistry majors, and premedical students; recommended for majors in life sciences. Lecture, 3 hours.
Prerequisite: CHM 112 Or CHM 221 And with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 202. Organic Chemistry II (Lecture). 3 Credit Hours.
Continuation of CHM 201. Lecture, 3 hours.
Prerequisite: CHM 201 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 204. Introductory Biology/Chemistry Laboratory II. 1 Credit Hour.
Integrated biology and chemistry laboratory exercises for first year students.
Co-req: CHM 221 and BIL 160.
Components: LAB.
Grading: GRD.
Typically Offered: Spring.

CHM 205. Chemical Dynamics Laboratory. 1 Credit Hour.
Introduction to techniques of chemistry.
Corequisite: CHM 221 with a grade of C- or higher.
Components: LAB.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 206. Organic Reactions and Synthesis Laboratory. 2 Credit Hours.
Continuation of CHM 205
Prerequisite: CHM 205. And Corequisite: CHM 202 or CHM 222. And with a grade of C- or higher.
Components: LAB.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 207. Chemical Dynamics and Organic Synthesis Laboratory. 2 Credit Hours.
Introduction to techniques in Chemistry. For students in the HHMI program only.
Prerequisite: CHM 205 And Corequisite: CHM 222.
Components: LAB.
Grading: GRD.
Typically Offered: Fall.

CHM 214. Quantitative Analytical Chemistry. 3 Credit Hours.
An introduction to quantitative chemical analysis. Topics will include statistical analysis of analytical data, a review of stoichiometry, analytical separation processes, chemical and acid-base equilibria, and an introduction to potentiometric, titrimetric, gravimetric, and spectrophotometric methods of analysis.
Prerequisite: CHM 202 or 222 with a grade of C- or higher. And MTH 162. or MTH 172.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CHM 221. Introduction to Structure and Dynamics. 4 Credit Hours.
The chemistry of carbon compounds.
Prerequisite: CHM 112 or CHM 121 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 222. Organic Reactions and Synthesis. 4 Credit Hours.
Continuation of CHM 221.
Prerequisite: CHM 201 or 221 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 316. Instrumental Analytical Chemistry. 3 Credit Hours.
Modern methods of quantitative analysis. Lecture, 3 hours.
Prerequisite: CHM 360 and CHM 214 Or CHM 360 and CHM 304. And with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 317. The Chemistry of Food and Taste.. 3 Credit Hours.
The chemical compositions of the raw materials and end products, and a survey of the changes that these undergo when exposed to human manipulations.
Prerequisite: CHM 202 or CHM 222.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

CHM 320. Instrumental Methods in Chemistry and Biochemistry. 2 Credit Hours.
Instrumental methods in modern chemistry and biochemistry, including spectrometric, electrochemical, and chromatographic (separation) Laboratory, 8 hours. Satisfies writing requirement.
Prerequisite: CHM 214 or CHM 304 And Corequisite: CHM 316. And with a grade of C- or higher.
Components: LAB.
Grading: GRD.
Typically Offered: Spring.

CHM 331. Physical Chemistry for Premedical Students. 3 Credit Hours.
Fundamentals of thermodynamics as applied to gases, liquids and solutions; chemical kinetics and other selected topics. Lecture, 3 hours.
Prerequisite: CHM 112 or CHM 121 with a grade of C- or higher and MTH 161 and PHY 102.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 360. Physical Chemistry I (Lecture). 3 Credit Hours.
Introduction to physical chemistry including thermodynamics, gaseous and liquid states, solutions, homogeneous and heterogeneous equilibrium. Lecture, 3 hours.
Prerequisite: CHM 112 or 121 with a grade of C- or higher And MTH 162 or MTH 172. Requisite: One Semester of Physics.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CHM 364. Physical Chemistry (Laboratory I). 1 Credit Hour.
Representative experiments in physical chemistry. Laboratory, 4 hours. This course can be taken to satisfy the College of Arts and Sciences writing requirement in the discipline.
Pre/Corequisite: CHM 360 or CHM 331 And with a grade of C- or higher.
Components: LAB.
Grading: GRD.
Typically Offered: Fall.

CHM 365. Physical Chemistry II (Lecture). 3 Credit Hours.
Chemical kinetics, introductory quantum chemistry, molecular spectroscopy.
Prerequisite: CHM 360 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 381. Workshop Leaders in Chemistry I. 1 Credit Hour.
Students engaged in Peer-Led Team Teaching of workshops for students may enroll for this course. May be repeated.
Components: THI.
Grading: GRD.
Typically Offered: Fall & Spring.

CHM 391. Chemistry Internship for Credit. 1-3 Credit Hours.
Provides chemistry majors with an opportunity to apply skills learned in coursework within settings outside the university. For example students can work in local schools, assisting instructors and mentoring students. They can also work in companies or government agencies for a defined period of time with clearly delineated goals to expand their expertise and practical knowledge of chemistry. Each enrolled student will be closely mentored by a faculty member.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 401. Environmental Chemistry. 3 Credit Hours.
Major environmental features of the earth; Role of natural and synthetic chemicals in the environment; Atmospheric and aquatic pollution; Application of acid- base theory and oxidation reduction to environmental problems.
Prerequisite: CHM 201 or CHM 222. And with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 441. Inorganic Chemistry (Lecture). 3 Credit Hours.
The relation of atomic and molecular structure to chemical and physical properties; introduction to nonaqueous solvents, coordination compounds, solid state chemistry and nuclear reactions. Lecture, 3 hours. Prerequisite: CHM 360.
Prerequisite: CHM 360 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 442. Inorganic Chemistry (Laboratory). 1 Credit Hour.
Synthesis of inorganic compounds and determination of their physical and chemical properties. Laboratory, 3 hours.
Co-requisite: CHM 441 with a grade of C- or higher.
Components: LAB.
Grading: GRD.
Typically Offered: Spring.

CHM 464. Physical Chemistry (Laboratory II). 1 Credit Hour.
Continuation of CHM 364. Laboratory, 4 hours.
Prerequisite: CHM 365 with a grade of C- or higher.
Components: LAB.
Grading: GRD.
Typically Offered: Spring.

CHM 488. Undergraduate Research. 0-3 Credit Hours.
Laboratory research under the direction of a member of the chemistry faculty. Thesis optional. Course may be repeated for credit.
Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 490. Honors Research. 1-3 Credit Hours.
Laboratory research under the direction of a member of the Chemistry faculty. Thesis required. Course may be repeated for credit.
Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 515. Makings of a Scientist. 3 Credit Hours.
By analyzing achievements and advise of few successful scientists, chemists in particular will highlight what qualities are needed to be a successful scientist. Importance of motivation, perseverance, communication skills, adhering to ethical guidelines and ability to deal with colleagues and co-workers will be brought out. Career options available for a trained chemist and how different each one is will be pointed out. Overall this is a course in multi-mentoring of graduate students who are aiming for a career in science and hope to be successful researchers in science, particularly in chemistry.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 520. Physical Organic Chemistry. 3 Credit Hours.
Aspects of chemical bonding, acids and bases, steoeochemistry, aromaticity, pericyclic reactions, linear free energy relationships, transition state theory, excited state chemistry, reactive intermediaries, mechanisms of uni- and bi-molecular reactions.
Prerequisite: CHM 202 or CHM 222 and CHM 360 And with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 522. Synthetic Organic Chemistry. 3 Credit Hours.
Functional group transformations, Synthon approach. Retro-synthetic analyses, multistep syntheses.
Prerequisite: CHM 202 or CHM 222 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 524. Supramolecular Chemistry. 3 Credit Hours.
Complexation, recognition, and catalysis as applied to bio-organic chemistry. Steric, polar, and lipophillic interactions as well as proximity effects in the design of synthetic enzyme mimics, cationic transport species, etc.
Prerequisite: CHM 365 and CHM 520 And with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 525. Structural Organic Chemistry. 3 Credit Hours.
Use of electronic and vibrational spectroscopy in structure elucidation. Structure elucidation by modern NMR; EI, CI, MALDI and Electropspray mass spectrometry. Assignment of absolute configuration of chiral centers.
Prerequisite: CHM 202 or CHM 222 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 526. CHM523 Medicinal Chemistry. 3 Credit Hours.
Medicinal chemistry is primarily concerned with the development of drug molecules, and the interpretation of their mode of action at the molecular level, with an emphasis on chemical synthesis.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 530. Fluorescence Spectroscopy and Microscopy. 3 Credit Hours.
The photophysical properties of organic compounds that illustrates the fundamental principles of fluorescence. It also explains how fluorescence spectra and images can be recorded and how these powerful analytical techniques can be used to address significant problems in biology and medicine.
Prerequisite: CHM 360 And with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 535. Molecular and Supramolecular Photochemistry. 3 Credit Hours.
Generation of a model that will help rationalize/predict excited state reactions. A brief background on physical aspects of photochemistry will be given. Exploring and understanding of reactions that are triggered by light. Importance of light in life will be highlighted.
Prerequisite: CHM 201 or 221 and CHM 202 or 222 And with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 541. Principles of Bonding and Reactivity in Inorganic Chemistry. 3 Credit Hours.
Bonding principles necessary to understand the structure, stability, and fundamental reactivity of main group and transition metal inorganic compounds.
Prerequisite: CHM 365 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CHM 553. Modern Quantum Chemistry. 3 Credit Hours.
Many-electron wave functions and operators. Hartee-Fock approximation, density functional theory, configuration interaction, and many-body perturbation theory.
Prerequisite: CHM 365 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CHM 565. Principles of Spectroscopic Techniques. 3 Credit Hours.
Spectroscopic techniques: nuclear magnetic resonance (NMR), mass spectra (MS), ultraviolet (UV), visible infrared (IR), fluorescence, and other specialized spectroscopic techniques.
Prerequisite: CHM 365 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 575. Principles of Nuclear Magnetic Resonance and Multidimensional Spectroscopy. 3 Credit Hours.
Theory of nuclear magnetic resonance; Bloch equations; relaxation theory; time- domain versus frequency domain spectroscopies, and principles of multidimensional spectroscopy.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 581. Advanced Analytical Chemistry. 3 Credit Hours.
Provides a strong foundation in the most important concepts in advanced analytical chemistry, including electrochemistry, chemical separations, and bioanalytical chemistry, and in the different classes of instrumental analytical techniques available to current chemists.
Prerequisite: CHM 214 and CHM 316 And with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 591. Topics in Chemistry. 3 Credit Hours.
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule following the title, "Topics in Chemistry".
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 592. Topics in Chemistry. 3 Credit Hours.
Subject matter offerings based upon student demand and availability of faculty.Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule following the title, "Topics in Chemistry."
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 593. Readings in Chemistry. 1-3 Credit Hours.
Supervised readings on special topics. Offered by special arrangement. May be repeated for credit.
Components: THI.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 594. Readings in Chemistry. 1-3 Credit Hours.
Supervised readings on special topics. Offered by special arrangement. May be repeated for credit.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 615. Makings of a Scientist. 3 Credit Hours.
By analyzing achievements and advise of few successful scientists, chemists in particular, will highlight what qualities are needed to be a successful scientist. Importance of motivation, perseverance, communication skills, adhering to ethical guidelines and ability to deal with colleagues and co-workers will be brought out. Career options available for a trained chemist and how different each one is will be pointed out. Overall this is a course in multi-mentoring of graduate students who are aiming for a career in science and hope to become successful researchers in science, particularly in chemistry.
Prerequisite: CHM 202 or CHM 222 with a grade of C- or higher.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 620. Physical Organic Chemistry. 3 Credit Hours.
Aspects of chemical bonding, acids and bases, steoeochemistry, aromaticity, pericyclic reactions, linear free energy relationships, transition state theory, excited state chemistry, reactive intermediaries, mechanisms of uni- and bi-molecular reactions.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 622. Synthetic Organic Chemistry. 3 Credit Hours.
Functional group transformations, Synthon approach. Retro-synthetic analyses, multistep syntheses.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 624. Supramolecular Chemistry. 3 Credit Hours.
Complexation, recognition, and catalysis as applied to bio-organic chemistry. Steric, polar, and lipophillic interactions as well as proximity effects in the design of synthetic enzyme mimics, cationic transport species, etc.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 626. Structural Organic Chemistry. 3 Credit Hours.
Use of electronic and vibrational spectroscopy in structure elucidation. Structure elucidation by modern NMR; EI, CI, MALDI and Electropspray mass spectrometry. Assignment of absolute configuration of chiral centers.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 630. Fluorescence Spectroscopy and Microscopy. 3 Credit Hours.
The photophysical properties of organic compounds that illustrates the fundamental principles of fluorescence. It also explains how fluorescence spectra and images can be recorded and how these powerful analytical techniques can be used to address significant problems in biology and medicine.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 635. Molecular and Supramolecular Photochemistry. 3 Credit Hours.
Generation of a model that will help rationalize/predict excited state reactions. A brief background on physical aspects of photochemistry will be given. Exploring and understanding of reactions that are triggered by light. Importance of light in life will be highlighted.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 641. Principles of Bonding and Reactivity in Inorganic Chemistry. 3 Credit Hours.
Bonding principles necessary to understand the structure, stability, and fundamental reactivity of main group and transition metal inorganic compounds.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CHM 653. Modern Quantum Chemistry. 3 Credit Hours.
Many-electron wave functions and operators. Hartee-Fock approximation, density functional theory, configuration interaction, and many-body perturbation theory.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CHM 655. Electrochemistry. 3 Credit Hours.
Modern electrochemical techniques including voltammetry, chronocoulometry, rotating disk electrode, and ultramicroelectrodes.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 665. Principles of Spectroscopic Techniques. 3 Credit Hours.
Spectroscopic techniques: nuclear magnetic resonance (NMR), mass spectra (MS), ultraviolet (UV), visible infrared (IR), fluorescence, and other specialized spectroscopic techniques.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 675. Principles of Nuclear Magnetic Resonance and Multidimensional Spectroscopy. 3 Credit Hours.
Theory of nuclear magnetic resonance; Bloch equations; relaxation theory; time- domain versus frequency domain spectroscopies, and principles of multidimensional spectroscopy.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 681. Advanced Analytical Chemistry. 3 Credit Hours.
Provides a strong foundation in the most important concepts in advanced analytical chemistry, including electrochemistry, chemical separations, and bioanalytical chemistry, and in the different classes of instrumental analytical techniques available to current chemists.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CHM 691. Topics in Chemistry. 1-3 Credit Hours.
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule following the title, "Topics in Chemistry".
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 692. Topics in Chemistry. 1-3 Credit Hours.
Subject matter offerings based upon student demand and availability of faculty.Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule following the title, "Topics in Chemistry."
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 693. Readings in Chemistry. 1-3 Credit Hours.
Supervised readings on special topics. Offered by special arrangement. May be repeated for credit.
Components: THI.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 694. Readings in Chemistry. 1-3 Credit Hours.
Supervised readings on special topics. Offered by special arrangement. May be repeated for credit.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 779. Chemistry Seminar. 1 Credit Hour.
Participation in the departmental seminar program. Required each semester the student is in residence and not enrolled in CHM 680 (excluding summer sessions).
Components: SEM.
Grading: GRD.
Typically Offered: Fall & Spring.

CHM 780. Chemistry Seminar. 1 Credit Hour.
Participation in the chemistry department seminar program, including an oral presentation of special topics.
Components: SEM.
Grading: GRD.
Typically Offered: Fall & Spring.

CHM 785. Introduction to Research. 2 Credit Hours.
Research principles and practices, independent study in selected subject areas, and/or oral presentation of a proposed research topic. Open only to graduate students working toward the M.S. or Ph.D. in chemistry.
Components: SEM.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 788. Problems in Research Planning. 2 Credit Hours.
Formulation of a research program for investigating an original problem not related to the candidate's major laboratory research. A brief written summary and an oral defense of the plan will be required.
Components: THI.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CHM 810. Master's Thesis. 1-6 Credit Hours.
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.
Components: THI.
Grading: SUS.
Typically Offered: Fall, Spring, & Summer.

CHM 820. Research in Residence. 1 Credit Hour.
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in CHM 710 (usually six credits). Credit not granted. May be regarded as full time residence.
Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CHM 830. Doctoral Dissertation. 1-12 Credit Hours.
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but for not less than a total of 12 hours. Up to 12 hours may be taken in a regular semester, but not more than six in a summer session.
Components: THI.
Grading: SUS.
Typically Offered: Fall, Spring, & Summer.

CHM 840. Post-candidacy Dissertation. 1-12 Credit Hours.
Required of all candidates for the Ph.D. who have advanced to candidacy. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Up to 12 hours may be taken in a regular semester, but not more than six in a summer session.
Components: THI.
Grading: SUS.
Typically Offered: Fall, Spring, & Summer.

CHM 850. Research in Residence. 1 Credit Hour.
Used to establish research in residence for the Ph.D. and D.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.
Components: THI.
Grading: SUS.
Typically Offered: Fall, Spring, & Summer.

CHM 880. Doctoral Dissertation Seminar. 1 Credit Hour.
Required of all candidates for the Ph.D. degree when defending their doctoral dissertation during their final term. A written dissertation and an oral defense of the Ph.D. dissertation will be required.
Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.