CHE 141-E, 142-E Honors Chemistry I, II
The topics covered in this sequence are similar to those in CHE 131, 132, but draw more on students’ previous background in science and mathematics to present the material in a more quantitative manner. Recommended for students with strong backgrounds in mathematics and science, especially chemistry and physics. Three lecture hours and one 80-minute work- shop per week. CHE 141 may not be taken for credit in addition to CHE 131, and CHE 142 may not be taken for credit in addition to CHE 132 or 198. Priority given to students in the University’s honors programs.
Pre-requisite to CHE 141: High school chemistry; level 5 on the mathematics placement examination or co-registration in MAT 125 or higher calculus course or AMS 151.
Pre-requisite to CHE 142: C or higher in CHE 141
Pre- or Corequisite to CHE 142: MAT 126 or higher or AMS 161
4 credits per course

CHE 143, 144 Honors Chemistry Laboratory I, II
Laboratory program similar in content to CHE 133, 134 but conducted at a more intensive and stimulating level. Four hours of laboratory and discussion per week. CHE 143 may not be taken for credit in addition to CHE 133, and CHE 144 may not be taken for credit in addition to CHE 134 or 199. Priority given to students in the University’s honors programs.
Pre-requisite to CHE 143: CHE 141
Pre-requisite to CHE 144: CHE 143
Corequisite to CHE 144: CHE 142
1 credit per course

CHE 198-E Chemistry for Engineers
A quantitative introduction to chemistry (stoichiometry, bonding, states of matter, equilibrium) with emphasis on topics of interest to engineers in engineering (metals and semiconductors; thermochromy; electrochemistry; corrosion; polymers). May not be taken for credit in addition to CHE 132 or 142.
Pre-requisite: high school chemistry
Pre- or Corequisite: PHYS 132/134 or 126 or 127; MAT 127 or 132 or 142 or AMS 161
Corequisite: CHE 199
3 credits

CHE 199 General Chemistry Laboratory for Engineers
A laboratory course to accompany CHE 198, including an introduction to analytical techniques, electrochemistry, and chemical synthesis. Both quantitative and qualitative methods are emphasized. May not be taken for credit in addition to CHE 134 or 144.
Corequisite: CHE 198
1 credit

CHE 221 Introduction to Chemistry of Solids
Introduction to the synthesis, structure, properties, and applications of solid materials. Topics include preparation and characterization of solids (introduction to X-ray diffraction), thermal decomposition, crystal structure, crystal defects, and solid-state properties that influence chemical reactivity. This course is offered as both CHE 221 and ESM 221.
Prerequisites: CHE 132 or 142 or 198, and CHE 131 or 133 or 143, 149; ESS 111 or ESE 114 or MAC 111 or MAC 112; MAT 123 or 127 or AMS 161; PHY 120 or 131/133 or 141
3 credits

CHE 301 Physical Chemistry I
The quantitative study of microscopic and macroscopic chemical systems, covering introductory quantum theory of atoms and molecules (energy levels and states), statistical thermodynamics, and fundamental thermodynamics with application to chemical reactions and simple systems.
Prerequisites: CHE 132 or 142 or 198; MAT 132 or 142 or 127 or AMS 161
Pre- or Corequisite: PHY 121/123 or 125 or 131/133 or 141
3 credits

CHE 302 Physical Chemistry II
Applications of thermodynamics to chemical equilibrium, electrochemistry, and ideal solutions. Applications of quantum theory to chemical bonding, molecular structure, and spectroscopy.
Prerequisites: CHE 301; MAT 211 or 203 or 205 or AMS 161
Pre- or Corequisite: PHY 122/124 or 132/134 or 142 or PHY 126/127
4 credits

CHE 303 Solution Chemistry Laboratory
Prerequisite: CHE 134 or 144 or 199
Corequisite: CHE 301
2 credits

CHE 304 Chemical Instrumentation Laboratory
Prerequisite: CHE 303.
Corequisite: CHE 302 and 385
Advisory prerequisite: Knowledge of computer programming
2 credits

CHE 310-H Chemistry in Technology and the Environment
Use of chemical principles in understanding processes that occur in the modern technological world and in the natural environment. Certain ecological problems of a chemical nature are analyzed. Methods of controlling these problems are discussed.
Prerequisite: CHE 132 or 142 or 198
3 credits

CHE 312 Physical Chemistry (Short Course)
A one-semester treatment of fundamental concepts of physical chemistry, intended primarily for students of the biological sciences desiring an introduction to physical chemistry. Topics include equations of state; classical thermodynamics and its application to chemical equilibrium in reaction systems, multiphase systems, and electrochemical cells; kinetic theory of gases; transport properties; chemical kinetics. May not be taken for credit by students who have completed CHE 301. Not for major credit.
Prerequisites: CHE 132 or 142 or 198; MAT 132 or 142 or 127 or AMS 161
Pre- or Corequisite: PHY 121/123 or 125 or 131/133 or 141
3 credits

CHE 321 Organic Chemistry I
An introduction to the structure, reactivity, and properties of organic compounds is presented using modern views of chemical bonding. These fundamental ideas are applied to topics ranging from synthetic organic chemistry to complex functional structures such as lipid bilayers.
Prerequisite: C or higher in CHE 132 or 142
3 credits
CHE 322 Organic Chemistry IIA
Discussion of the structure, reactivity, and properties of organic compounds introduced in CHE 321 is continued. The chemistry of substances important in biology, medicine, and technology is emphasized. CHE 322 may not be taken for credit in addition to CHE 326. Prerequisite: C or higher in CHE 321 3 credits

CHE 326 Organic Chemistry IIB
Similar to CHE 322 but providing a more fundamental view of organic compounds, reaction mechanisms, and synthesis, based somewhat more explicitly on thermodynamics and kinetics. Especially for those who may major in chemistry, biochemistry, or another physical science. CHE 326 may not be taken for credit in addition to CHE 322. Prerequisite: C or higher in CHE 321 3 credits

CHE 327 Organic Chemistry Laboratory
Techniques of isolating and handling organic substances, including biological materials. A one-semester course that provides a basic organic laboratory experience. It is recommended that students take CHE 327 at the same time as or immediately following CHE 322 or 332. Four laboratory hours and one lecture hour per week. Not for credit in addition to CHE 383. Prerequisite: CHE 134 or 144 Pre- or Corequisite: CHE 321 (or the former CHE 331) 2 credits

CHE 341 Organic Chemistry Honors Seminar I
Advanced topics in organic chemistry within the scope but beyond the reach of CHE 321 (Organic Chemistry I) will be discussed along with an introduction to contemporary research topics. Permission to enroll will be granted to students who have demonstrated excellence in their General Chemistry courses. Prerequisites: CHE 132 or 142; permission of instructor Corequisite: CHE 321 1 credit

CHE 342 Organic Chemistry Honors Seminar II
Advanced topics in organic chemistry within the scope but beyond the reach of CHE 322 (Organic Chemistry II) will be discussed along with topics in contemporary research. Permission to enroll will be granted to students who have demonstrated excellence in CHE 321. Prerequisites: CHE 321; permission of instructor Corequisite: CHE 322 1 credit

CHE 344 Spectroscopy of Organic Compounds
Modern spectroscopic methods applied to organic compounds. Structural effects on spectroscopic properties are surveyed with dual emphasis on fundamental aspects and problem solving. The student learns how spectroscopic methods are used both to solve complex structural problems and to investigate bonding features in organic molecules. Prerequisite: CHE 322 or 326 (or the former CHE 332) 3 credits

CHE 345 Structure and Reactivity in Organic Chemistry
Electronic and stereochemical theories relating to organic structure and reactions. Topics such as bonding, strain, aromaticity, MO theory, molecular rearrangements, pericyclic reactions, and photochemistry are covered. Prerequisites: CHE 322 or 326 (or the former CHE 332) Pre- or Corequisite: CHE 301 or 312 3 credits

CHE 346 Biomolecular Structure and Reactivity
The reactivity and physiological function of biologi- cal macromolecules and their monomeric constituents are described at the chemical level. The course reflects the most recent advances at the interface of organic chemistry and biochemistry. Specific topics include catalysis, biomimicry, protein and DNA modification, binding, and target recognition, and correlation between three-dimensional structure and reactivity. Pre- or Corequisites: CHE 322 or 326 (or the former CHE 321); CHE 301 or 312 3 credits

CHE 351 Quantum Chemistry
Concepts of quantum theory, Schrödinger wave mechanics, and related mathematical techniques illustrated by application to systems of chemical bonding, spectroscopy, molecular structure, and molecular collision phenomena. Prerequisites: CHE 302; MAT 303 or 205 3 credits

CHE 353 Chemical Thermodynamics
A rigorous development of thermodynamics and its application to systems of interest to chemists, including electrochemical cells, gases, polymers, and homogeneous and heterogeneous equilibrium. An introduction to statistical mechanics is included. Prerequisites: CHE 302; CHE 321 (or the former CHE 331) 3 credits

CHE 357 Molecular Structure and Spectroscopy Laboratory
Optical and magnetic resonance spectroscopy are used to investigate the structural, dynamic, and quantum mechanical properties of some basic chemical systems. Emphasis is on the qualitative measurement of molecular parameters and transformations. Prerequisites: CHE 304 and 383 2 credits

CHE 361 Nuclear Chemistry
Properties of radioactive substances and their use in the study of chemical problems, nuclear stability and structure, nuclear reactions, radioactive decay, interactions of radiation with matter, nuclear medicine, isotopic applications, and environmental control. Offered in summer only. Prerequisites: Four semesters of chemistry; PHY 126 and 127 or PHY 122/123 and 122 or MAT 121 or 122, 123 or 132 or 142; permission of department through application by January 30; permission of instructor Corequisite: CHE 362 3 credits

CHE 362 Nuclear Chemistry Laboratory
Detection and measurement of radiation, electronic instrumentation, radiation safety, and application of radioactivity to chemical problems. Offered in summer only. Corequisite: CHE 361 3 credits

CHE 375 Inorganic Chemistry I
A survey of inorganic chemistry covering various classes of inorganic compounds and reactions with emphasis on the structural aspects. Wherever possible, the subject is treated on the basis of modern concepts of chemical bonding. Thermodynamic and kinetic aspects of inorganic reactions are included. Prerequisites: CHE 302; CHE 321 (or the former CHE 331) 3 credits

CHE 376 Inorganic Chemistry II
The chemistry of the elements with an emphasis on the transition metals. Reaction mechanisms, synthesis, and structure are covered. Specific areas of concern include coordination chemistry, organometallic chemistry, bioinorganic chemistry, and selected topics from solid-state and non-transition metal chemistry. Prerequisite: CHE 375 3 credits

CHE 383 Introductory Synthetic and Spectroscopic Laboratory Techniques
Fundamental laboratory techniques including methods of separation, purification, synthesis, and analysis. Emphasis is on organic with an introduction to inorganic problems. For students who require substantial laboratory skills, such as those planning careers in research. Not for credit in addition to CHE 327. Prerequisite: CHE 134 or 144 Corequisite: CHE 321 (or the former CHE 331) 2 credits

CHE 384 Intermediate Synthetic and Spectroscopic Laboratory Techniques
Application of fundamental laboratory techniques to organic and inorganic problems including multistep syntheses and structural and mechanistic determinations. Lectures cover material pertaining to the experimental work, with an emphasis on spectroscopy. Prerequisite: CHE 383 Corequisite: CHE 322 or 332 (or the former CHE 332); CHE 385 3 credits

CHE 385 Tools of Chemistry
A seminar course covering topics common to all areas of chemistry: scientific ethics, chemical literature and information retrieval, scientific writing, and oral presentation. Should be taken concurrently with the student’s second 300-level chemistry laboratory course. Satisfactory completion of the course fulfills the Chemistry department’s upper division writing requirement. A through C/Unsatisfactory grading only. Corequisite: CHE 304 or 384 1 credit, ABC/U grading only

CHE 461 Selected Topics in Chemistry
Semester supplements to this Bulletin contain specific description when course is offered. May be repeated for credit as the topic changes. Prerequisite: Varying with topic 1-3 credits

CHE 475, 476 Undergraduate Teaching Practica I, II
Work with a faculty member as an assistant in one of the faculty member’s regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In CHE 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may participate only in courses in which they have excelled. Prerequisite to CHE 475: Permission of department Prerequisites to CHE 476: CHE 475; permission of department 3 credits per course; SU/U grading

CHE 482 Senior Laboratory Projects in Chemistry
Laboratory projects, some to be chosen by the student, primarily in organic, inorganic, and biological chemistry. There are opportunities to learn specialized skills useful for professional employment in quality control, research, or development. Prerequisites: CHE 375, 384, and 385 2 credits

CHE 487 Research in Chemistry
Students pursue research or tutorial study in specialized areas of chemistry. May be repeated. Prerequisites: Permission of instructor and department 0-6 credits
CHE 498 Internship
Research participation in off-campus laboratories. Students are required to submit to the department a proposal at the time of registration and a research report at the end of the semester. May be repeated up to a limit of 12 credits.
Prerequisites: CHE 384; permission of instructor and department
6-3 credits, S/U grading

CHE 490 Current Trends in Biological Chemistry
A discussion of current topics of research and methodology in modern biological chemistry. The course includes directed readings, attendance, and discussion at seminars presented by speakers from various academic and industrial institutions. May be repeated.
Prerequisite: CHE 322 or 326 (or the former CHE 332)
Pre- or Corequisite: CHE 301 or 312
1 credit

CHE 495-496 Senior Research
A two-semester research program to be carried out under the supervision of a staff member. The results of this work are to be submitted to the department in the form of a senior research report. The student is given an oral examination in May by a faculty commit-
tee consisting of the student’s supervisor and three other faculty members. Students receive only one grade upon completion of the sequence.
Prerequisites: U4 standing; permission of instructor and department
3 credits per course

CHI Chinese Language

CHI 111, 112 Elementary Chinese I, II
An introduction to spoken and written Chinese Mandarin, with equal attention to speaking, reading, and writing. Laboratory practice supplements class work. No student who has had two or more years of Chinese in high school or who has otherwise acquired an equivalent proficiency will be permitted to enroll in CHI 111 without written permission from the supervi-sor of the course.
Prerequisite to CHI 112: CHI 111
3 credits per course

CHI 210 Elementary Chinese for Chinese Speakers
An elementary level Chinese language course for stu-
dents who have had some exposure to the Chinese cultural norms and conventions and who already can communicate in Chinese orally on topics of daily rou-tines, although with grammatical mistakes and non-
standard pronunciation, but cannot read or write. The course focuses on reading and writing skills and expands the depth and scope of exposure to the Chinese culture.
1 credit

CHI 211, 212 Intermediate Chinese I, II
An intermediate course in Chinese Mandarin to devel-
op auditory skills and reading and writing ability. Selected texts serve as the basis for practice in read-
ing comprehension and composition. Intensive exer-cises in character writing are required to develop writ-
ing technique.
Prerequisite to CHI 211: CHI 112 or 210
Prerequisite to CHI 212: CHI 211
3 credits per course

CHI 311-J Readings in Journalistic Chinese
Advanced narrative readings in Chinese selected from Chinese newspapers and magazines, including news reports and narratives on life styles, people, and land-
scapes. Students are expected to improve their skills in the analysis and writing of narrative readings. This course is designed for students who already have intermediate level proficiency in Chinese, who can read and write everyday vernacular Chinese, but who have not been exposed to more formal language and literary forms.
Prerequisite: CHI 212 or proficiency in Chinese
3 credits

CHI 312-J Readings in Classical Chinese
Introduction to writings in Chinese that appeared before the May 4th Movement (circa 1920), which marked the beginning of modern Chinese. The course introduces students to readings in classical Chinese and to acquaint students with cultures and customs of traditional China. This course is designed for students who already have intermediate level proficiency in Chinese, who can read and write everyday vernacular Chinese, but who have not been exposed to more for-mal language and literary forms.
Prerequisite: CHI 212 or proficiency in Chinese
3 credits

CHI 321-J Chinese Poetry and Short Stories
Selected masterpieces of poetry and short stories writ-
ten during the first half of the 20th century. Students are expected to improve their skills in literature apprecia-
tion and to model their own writings after works read in class. This course is designed for students who already have advanced level proficiency in the Chinese language in all its forms including reading and writing. Not for credit in addition to the discontin-
ued CHI 396.
Prerequisite: Advanced level proficiency in Chinese
3 credits

CHI 322-J Chinese Lyric Prose and Plays
Selected masterpieces of lyric prose and drama written during the first half of the 20th century. Students are expected to improve their skills in literature apprecia-
tion and to model their own writings after works read in class. This course is designed for students who already have advanced level proficiency in the Chinese language in all its forms including reading and writing. Not for credit in addition to the discontin-
ued CHI 396.
Prerequisite: Advanced level proficiency in Chinese
3 credits

CHI 447 Directed Readings in Chinese
Individually supervised readings in selected topics in Chinese language and literature or, alternatively, for the purpose of developing Chinese vocabulary in a secondary field, in selected topics in the humanities, social sciences, or natural sciences. May be repeated.
Prerequisite: Permission of department
1-4 credits

CHI 487 Independent Research
An individual research project in Chinese, such as translation, analysis of documents or literature, etc., in consultation with the instructor. Students are expect-
ed to meet at regular intervals and to present the com-
pleted project at the end of the semester. May be repeated.
Prerequisites: Interview; permission of instructor
0-3 credits

CLS Classics

CLS 113-B Greek and Latin Literature in Translation
Historical and analytical study of the development of classical Greek and Latin literature. Extensive read-
ings in translation include works illustrating epic, lyric, drama, history, satire, and criticism.
3 credits

CLS 215-I Classical Mythology
An introduction to ancient Greek religion, literature, and art. Special emphasis will be given to the present-
ation of myth in Classical Greek literature as well as to the influence of classical mythology on later litera-
ure, art, and philosophy.
Advisory Prerequisite: One course in literature
3 credits

CLS 320 Topics in Classical Civilization
Semester supplements to this Bulletin contain specific description when course is offered. May be repeated for credit as the topic changes.
Prerequisites: Two courses in ancient Greek or Latin language, literature, mythology, religion, art, or history
3 credits

CLS 447 Directed Readings in Classics
Intensive study of a particular author, period, or genre of Greek and Latin literature in translation under close faculty supervision. May be repeated.
Prerequisite: Permission of instructor
1-6 credits

CLS 475 Undergraduate Teaching Practicum
Work with a faculty member as an assistant in one of the faculty member’s regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course.
3 credits, S/U grading

CLT Comparative Literature

CLT 211-1 Literary Survey: Medieval through Late Renaissance
Historical and analytical study of representative works illustrating medieval epic, romance, and lyric. The course also examines the beginnings of humanism through the late Renaissance.
Advisory Prerequisite: One course in literature
2 credits

CLT 212-1 Literary Survey: Enlightenment through Modern
Historical and analytical study of literature from the late 17th century, the neoclassical era, the romantic revolution through the 19th century (realism, natural-
ism, symbolism), leading to the culmination of mod-
eranism.
Advisory Prerequisite: One course in literature
2 credits

CLT 220-1 Non-Western Literature
A survey of the major themes and forms of non-Western literature, such as Asian, Indian, and African. Semester Supplements to this Bulletin contain

http://www.stonybrook.edu/ugbulletin