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| **斯坦福大学( Stanford University)** | [返回](http://59.72.66.9/services/wjzx/ktyj/mgdx.html) |
| **General Chemistry**Two different general chemistry sequences are offered: the two-quarter set of courses Chem 31A/B and the one-quarter course 31X. Both sequences arrive at the same endpoint. Those entering students who are interested in taking chemistry 31X and who do not have AP credit (a score of a 4 or 5 on the AP Chemistry exam) must take the placement test during orientation. This test will also be made available to returning students at the beginning of the school year to aid in placement decisions.斯坦福大学是4学期制。普通化学可以选2个学期课31A/B或1个学期的课31X，课程深度一致。但新生入学后想选31X而在中学又没学过大学化学课需参加摸底考试。 CHEM 31A. Chemical Principles I—For students with moderate or no background in chemistry. Stoichiometry; periodicity; simple models of ionic and covalent bonding; dissolution/precipitation, acid/base, and oxidation/reduction reactions; gas laws; phase behavior; rates of reactions. Emphasis is on skills to address structural and uantitative chemical questions; lab provides practice. Recitation. GER: DB-NatSci 4 units, Aut (Chidsey, C)CHEM 31B. Chemical Principles II—Chemical equilibria; rates and mechanisms to reach equilibrium; thermochemistry, free energy, and relation to equilibrium; quantum concepts, and atomic and molecular orbital theory. Lab provides practice. Recitation. Prerequisite: 31A.GER: DB-NatSci 4 units, Win (Andersen, H)CHEM 31X. Chemical Principles—Accelerated; for students with substantial chemistry background. Chemical equilibria concepts, equilibrium constants, acids and bases, chemical thermodynamics, quantum concepts, models of ionic and covalent bonding, atomic and molecular orbital theory, periodicity, and bonding properties of matter. Recitation. Prerequisites: high school chemistry and algebra. Recommended: high school physics. GER: DB-NatSci，4 units, Aut (Waymouth, R; Fayer, M), Sum (Staff)Stanford 大学化学系为大一新生开设的有趣化学讲座 1，CHEM 22N. Naturally Dangerous（天然的危险）—Stanford Introductory Seminar. Preference to freshmen. Topics from Collman’s Naturally Dangerous: Surprising Facts About Food, Health, and the Environment. Designed for nonscientists, but also of interest to scientists and engineers. 2 units, Aut, Spr 2，CHEM 24N. **Nutrition and History（营养与历史）**—Stanford **Introductory Seminar. Preference to freshmen.** Intended to broaden the introductory chemistry experience. The biochemical basis of historically important nutritional deficiencies (vitamins, minerals, starvation, metabolic variants that predispose to disease) and environmental toxins is related to physiological action and the sociological, political, and economic consequences of its effect on human populations. Prerequisite: high school chemistry. Recommended:31A,B, or 31X, or 33.3，CHEM 25N. **Science in the News（新闻中的科学）**—**Stanford Introductory Seminar. Preference to freshmen.** Possible topics include: diseases such as avian flu, HIV, SARS, and malaria; environmental issues such as climate change, and atmospheric pollution, and human population; evolution; stem cell research; nanotechnology; and drug development. The scientific basis for these topics to have an intelligent discussion of societal and political implications. Sources include the popular media and scientific media for the nonspecialist, especially those available on the web.3 units, Aut (Andersen, H)4，CHEM 27N. **Lasers（激光）:** The Light Fantastic—**Stanford Introductory Seminar. Preference to freshmen.** Introduction to lasers and their impact on everyday life. The operation of lasers using concepts of atomic and molecular energy levels, optics, and resonance. The use of lasers to produce guide stars for astronomy, sculpt the cornea, measure molecules in the ozone layer, transmit optical information over the web, measure the distance to the moon, and observe a single protein molecule in action. Prerequisites: CHEM 31A or X, or PHYSICS 23 and 25, or equivalents. GER: DB-NatSci 3 units, Win (Moerner, W)  |