



Faculty Qualifications: Discipline Description

Chemistry

ACTIVE TEACHING DISCIPLINES		
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CIP Code	Description	NCES Definition For more information on the NCES CIP taxonomy, see http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55
40.0501	Chemistry, General	A general program that focuses on the scientific study of the composition and behavior of matter, including its micro- and macro-structure, the processes of chemical change, and the theoretical description and laboratory simulation of these phenomena.
40.0601	Geology/Earth Science, General	A program that focuses on the scientific study of the earth; the forces acting upon it; and the behavior of the solids, liquids and gases comprising it. Includes instruction in historical geology, geomorphology, and sedimentology, the chemistry of rocks and soils, stratigraphy, mineralogy, petrology, geostatistics, volcanology, glaciology, geophysical principles, and applications to research and industrial problems.

The qualifications described below represent commonly accepted good practices for teaching in the discipline(s) included in this unit. [1]

Please provide a general description of unit, including programs and course offerings [2]

The Chemistry Department offers these programs:

- Chemistry B.S.
- Forensic Science B.S.
- Chemistry minor
- Industrial Chemistry M.S.
- Forensic Science M.S.
- Chemistry Ph.D.

Education and research in the department span many areas within the chemical sciences including materials chemistry, nanotechnology, nonlinear optics, drug design and delivery, biochemistry, forensic science, and environmental chemistry. The forensic science programs

specialize in trace evidence analysis and forensic biochemistry DNA analysis. The B.S. in chemistry program is certified by the American Chemical Society. The department has developed an extensive network of partnerships with business and industry. The Ph.D. program focuses on materials chemistry, environmental chemistry, biochemistry, and forensic science. The department benefits from close ties with units at UCF including the National Center for Forensic Science, the College of Optics and Photonics, and the Burnett School of Biomedical Sciences.

Terminal degree(s) for each discipline taught in the unit [3]

A terminal degree in the teaching discipline qualifies a person to teach throughout the broad scope of the teaching discipline at the undergraduate and graduate levels. [4]

Ph.D. in chemistry, organic chemistry, analytical chemistry, physical chemistry, inorganic chemistry, biochemistry, or closely related chemical science
The department offers introductory courses in geology for which the suitable terminal degree is the Ph.D. in geology.

Broadly related discipline(s) for each discipline taught in the department

Specialization qualifies a person to teach throughout the broad scope of teaching discipline (approximately five or more courses on distinct topics)

In addition to those areas listed above faculty holding a degree at the appropriate level (doctorate for graduate, master's for undergraduate) in industrial chemistry or pharmaceuticals are qualified to teach throughout the broad scope of the chemistry and forensic science disciplines.

Faculty members with a degree at the appropriate level (doctorate for graduate, master's for undergraduate) in biophysics with a demonstrated research focus in biochemistry or a related area are qualified to teach throughout the broad scope of the chemistry discipline.

Selectively related discipline(s) for each discipline taught in the department

Specialization does not qualify a person to teach distinct topics throughout the broad scope of the teaching discipline but does qualify to teach a more restrictive set of courses in the discipline (approximately four or fewer courses on distinct topics)

Faculty holding a degree at the appropriate level (doctorate for graduate, master's for undergraduate) in the biological and physical sciences with a significant chemistry or biochemistry connection are qualified to teach certain courses in chemistry or forensic science. On a case-by-case basis, the applicable courses will be noted on the teaching certification

submission based upon the faculty members' specific specialization area.

Faculty holding a degree at the appropriate level (doctorate for graduate, master's for undergraduate) in genetics are qualified to teach in the biochemistry and forensic biochemistry disciplines. Specifically, these courses include BCH4053 (Biochemistry I), BCH4054 (Biochemistry II), BCH4103L (Biochemical Methods), BCH6740 (Applied Biochemistry), CHM2205 (Intro. to Organic and Biochemistry.), CHS3533 (Forensic Biochemistry. I), CHS3533L (Forensic Biochemistry Lab I), CHS4534C L(Forensic Biochemistry II), CHS4537 (Forensic Lab Quality Assurance), CHS6513 (QA and Bioinformation), CHS6535L (Forensic Molecular Biology), CHS6536 (Population Genetics and Genetic Data Analysis).

Justification for use of faculty with 'other' teaching qualifications and additional faculty teaching qualifications information [5] [6]

Courses teaching the presentation of scientific research in written and oral form can be taught by a person holding a degree at the appropriate level (doctorate for graduate, master's for undergraduate) in any physical science, including chemistry, geology, etc. Such courses include CHM4914C (Research Methods), CHM4930 (Chemistry Seminar), CHM6936 (Chemistry Seminar).

The forensic science B.S. and M.S. include a legal course "Forensic Science in the Courtroom" for which the appropriate academic qualification is a J.D. or M.S. in an appropriate biological or physical sciences field plus appropriate professional courtroom experience with forensic evidence. Similarly, a graduate course "Forensic Analysis of DNA Data" requires expertise in statistics and genetics; the appropriate qualification is a Ph.D. in statistics or genetics. Certain practical forensic science courses are best taught by instructors with a forensic science or closely related degree (at this point in the field's development usually an M.S., (since Ph.D.s are rare) plus (for graduate courses) suitable professional experience.

Faculty holding an M.S. in Veterinary Medical Sciences with a Concentration in Forensic Toxicology is qualified to teach both the BS and MS Forensic Science degree courses.

[1] The unit chair/director, in consultation with unit faculty, has responsibility for identifying and articulating commonly accepted good practices in each teaching discipline taught in the unit and for providing appropriate justification as needed. In the case of an emerging discipline for which common collegiate practice has not yet been established, a compelling case must be provided as necessary to substantiate the claims made.

[2] Please provide a general description of the unit course and program offerings at the undergraduate and graduate levels (e.g., degree and certificate programs, minors, departmental contribution to interdisciplinary core

courses). This section may also be used to provide other pertinent information about the unit and the discipline(s) it represents (e.g., discipline accreditation, faculty research emphases).

[3] List those degrees for each discipline taught in the unit that are regarded by the respective disciplinary community as terminal degrees in the discipline and thus, qualify a faculty member to teach throughout the broad scope of that discipline at both the undergraduate and graduate levels. In most fields, a terminal degree is the commonly accepted highest degree in the given field of study. In such instances, the terminal degree is usually considered to be the academic (or research) doctorate (e.g., Doctor of Philosophy). However, some academic fields have, through custom, recognized terminal degrees that are not doctorates (e.g., Master of Fine Arts, Master of Social Work). Note that terminal degrees from other disciplines may be appropriate for teaching in the discipline as well, but such credentials should be listed as broadly or selectively related degrees, as appropriate.

[4] A non-terminal master's degree in the teaching discipline qualifies a person to teach throughout the broad scope of the teaching discipline at the undergraduate level, not at the graduate level.

[5] Please use this section to provide justification that helps to make the case for special circumstances that apply to your unit including the use of faculty qualified to teach by 'other' qualifications and other special situations. Typically the statements provided in this section should be of a general nature, and not address specific individuals. (Justification for specific individuals is typically handled separately during the teaching certification process.) As appropriate, please cite to appropriate authorities to justify departmental practices (e.g., discipline accreditation guidelines, state regulations).

[6] When a faculty member cannot be qualified to teach on the basis of academic credentials (degree(s) and course work) alone, qualifications other than academic credentials (or combined with credentials) may be appropriate for teaching particular courses. Consideration of other teaching qualifications either in conjunction with or in lieu of academic credentials must be made on a case-by-case basis. Such cases should be exceptional and the evidence of other demonstrated competencies and achievements provided must be compelling. It should also show substantial and significant evidence of professional progress as related to the faculty member's teaching assignment.