

## Job Description

**JOB TITLE:** Chemistry Instructor (Specialization: Organic Chemistry)  
**LAST REVISED:** NOVEMBER 1996

### DEFINITION

Under minimum administrative direction of an educational administrator, to develop curriculum, provide lecture and laboratory instruction, evaluate the performance of students engaged in the study of chemistry and other related courses, as directed, and perform related work as assigned.

### EXAMPLES OF FUNCTIONS AND TASKS

**Curriculum Development - ESSENTIAL:** Review and evaluate curriculum in order to meet student interests and needs within the parameters of Divisional and/or Departmental budget constraints and availability of equipment and materials; coordinate with part-time instructors to enhance consistency of lecture and laboratory content; evaluate and/or revise course descriptions to fit curriculum designs; present proposals for curriculum changes to the curriculum committee and/or other appropriate shared governance bodies; make changes to curriculum as necessary and as approved within the shared governance structure. **PERIPHERAL:** Review curriculum for compliance with changes in laws, regulations, and standards.

**Lecture/ Laboratory Preparation - ESSENTIAL:** Complete book order forms, as necessary; place appropriate reference items on reserve in the library, as necessary; prepare lesson plans to be used in lectures and/or coordinate lectures with laboratory learning assignments; prepare lists of laboratory materials needed and supplies Instructional Assistant(s) with a materials listing and a schedule of laboratory experiments; coordinate with Instructional Assistant(s) and/or student help to: assemble laboratory materials and move equipment in and out of laboratories, acquire and maintain materials as needed, select and prepare materials for use in the classroom and/or laboratory, prepare solutions and chemicals, check availability and operation of equipment and needed materials, clean, calibrate and check equipment and return items and equipment to proper storage areas after classroom and/or laboratory use; practice correct handling of hazardous chemical materials, and recognize hazards associated with materials; check materials and equipment setups before each laboratory to determine suitability for use. **PERIPHERAL:** In consultation with appropriate department members, review and evaluate new textbooks for content, readability, and cost effectiveness and select textbooks and/or laboratory manuals determined to be the most useful and appropriate; attend classes, workshops, conferences and symposiums to increase and/or update knowledge of subject matter and teaching methods and techniques; read current literature (normally several sources- books, newspapers, periodicals, and other printed materials) to enhance preparation of lectures; prepare, edit, and update syllabus materials for lectures and/or laboratories; review and select and/or prepare computer and audio-visual materials for classroom and/or laboratory use; prepare typewritten and/or graphic handouts and/or transparencies for classroom and/or laboratory use, when appropriate; coordinate and confer with book publishing company sales representatives providing instructional materials; coordinate with Instructional Assistant(s) to train and direct student help to assist in laboratory preparation and clean-up chores; experiment with changes in laboratory procedures and/or equipment which will improve instruction; Familiarize self with operation of all equipment currently available for use and which is appropriate for the subject area.

**Lecture/ Laboratory Presentation - ESSENTIAL:** Introduce and present lecture/laboratory information and concepts in a clear and logical manner; use analogies and/or examples to convey important chemical concepts; provide instructional objectives to direct student learning; outline major points of information on board or overhead projector; enhance presentations with visual aids and/or demonstrations and/or examples, when appropriate; prepare and distribute handouts to clarify particularly difficult topics; answer student questions clearly and without ridicule, improper criticism or bias; encourage student participation and involvement in classroom and laboratory discussions; provide equal opportunity for student participation; monitor student activity and take steps to prevent and/or control unacceptable behavior; design and develop new classroom and laboratory exercises to demonstrate major chemical concepts; promote use of critical thinking and the scientific method in all laboratory

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exercises or experiments; demonstrate laboratory techniques and operation of nuclear magnetic resonance (NMR) spectrometer, infrared (IR) spectrometer, high performance liquid chromatograph (HPLC), ultraviolet (UV) spectrometer, gas chromatograph and other equipment; help students to set up, operate, and troubleshoot laboratory equipment and monitor laboratory activities, assisting as necessary; troubleshoot equipment set-up and operation and make modifications and/or substitutions to allow completion of experiments; identify and discuss characteristics and properties of chemical materials in the classroom and laboratory; interpret and explain chemical data being collected, and acknowledge and explain variations as characteristic of chemical reactions and processes; move around in the laboratory, working with students; stay physically present in the laboratory to supervise activities. **PERIPHERAL:** Supervise student clean-up of the laboratory; advise students of hazards associated with electrical equipment, chemicals, etc.; introduce students to proper use of laboratory notebooks and monitor use during laboratory sessions; monitor disposal of chemical wastes by students.

**Student Performance Evaluation - ESSENTIAL:** Develop quizzes, tests and laboratory/classroom examinations which are understandable and which fairly evaluate student progress; monitor student activity during examinations/quizzes and take steps to prevent and/or control unacceptable behavior, e.g., cheating; deal swiftly, rationally, and consistently with persons involved in cheating and/or other unacceptable behavior; read and evaluate student responses on examinations/quizzes, marking and grading papers accordingly; tabulate scores and assign official grades; read and assign grades to experiment write-ups; record scores and student attendance on appropriate forms, as required; advise students on academic matters regarding their performance; refer students to appropriate student services (for example, ESL, EOPS, etc.) **PERIPHERAL:** Assign, read and evaluate homework assignments and/or projects to promote learning; input student scores into a computer (including word processing software) and make printouts of scoring data available to affected students.

**Shared Governance Participation - ESSENTIAL:** Attend and participate in departmental meetings and activities; respond in writing to requests for information (for example, employment process position questionnaires, unit planning guides, environmental impact reports, etc.); participate in articulation/curriculum development, investigation and costing of departmental equipment needs and selection of textbooks; represent department by serving on campus-wide committees, as appropriate and feasible. **PERIPHERAL:** Attend and participate in divisional and/or building meetings and activities, as well as those organized by the Faculty Senate and the Staff Development Committee; serve on employee selection committees, as requested; serve as a functional member of one or more committees and/or task forces; attend Board of Trustees and/or College Council meetings, as necessary; respond to information polls distributed by the Faculty Senate.

**Ancillary Student Services - ESSENTIAL:** Hold regular office hours; provide advice to students regarding academic performance; provide students and peers with a positive role model in terms of character and citizenship; participate in graduation and outstanding student award ceremonies. **PERIPHERAL:** Provide students with letters of recommendation, as requested; hold review sessions of classroom/laboratory material, as necessary; advise and encourage students relative to Chemistry Department curriculum; provide opportunities for participation in field trips and/or club activities.

### MINIMUM QUALIFICATIONS:

#### Degrees/Experience:

**ESSENTIAL:** Master's degree in chemistry **OR** Bachelor's degree in chemistry **AND** Master's degree in biochemistry, chemical engineering, chemical physics, physics, molecular biology, geochemistry **OR** the equivalent.

#### Knowledge of:

**ESSENTIAL:** Organic chemistry concepts and topics and their interrelation, as well as analytical chemistry, biochemistry, general chemistry and inorganic chemistry concepts and topics and their interrelation; laboratory

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preparation procedures; operation of NMR spectrometer, HPLC, IR spectrometer, UV spectrometer, GC, and other laboratory equipment utilized to record chemical phenomena/data; scientific methodology; teaching practices, methods, and techniques; laboratory equipment calibration procedures, particularly NMR spectrometer, HPLC, IR spectrometer, UV spectrometer, and GC equipment; laboratory hazards and appropriate safety protocols. **PERIPHERAL:** Microcomputer operation, particularly word processing software packages/applications.

### **Ability to:**

**ESSENTIAL:** Lecture in front of large groups of students; explain chemical concepts and processes in a logical, sequential fashion; operate, troubleshoot, test, and calibrate NMR spectrometer, HPLC, IR spectrometer, UV spectrometer, GC, and other laboratory equipment; correctly interpret chemical data and draw accurate conclusions; prepare laboratory equipment and materials; provide students with a "hands on" learning experience in a laboratory setting; form and maintain effective working relationships with peers, staff and students; work independently to solve problems; recognize variation in student backgrounds, abilities, and learning styles; be patient with students; maintain integrity, honesty, reliability, and cooperation. **PERIPHERAL:** Operate a microcomputer, including word processing software packages/applications).

### **Physical Suitability Requirements:**

**ESSENTIAL:** Incumbent must be able to perform work in the confines of a classroom and/or laboratory environment engaged in work of primarily a moderately active nature and to perform the following, with or without reasonable accommodation: Frequently: Utilize vision (near) for reading printed materials and computer screens and for observing chemical phenomena in a laboratory setting; reach (overhead and low) to operate equipment, obtain/store laboratory materials and present lecture information; stand, sit, walk and turn to present lectures, other instruction, and to deliver instructional materials in the classroom and laboratory; lift, push, pull, stoop, squat, bend and carry to move and operate equipment and prepare laboratory materials; utilize manual and finger dexterity to operate equipment, including computers, and to prepare laboratory materials; utilize hearing to respond to student questions, normal conversation, and telephone calls; wear protective equipment to protect face, eyes, arms, hands and fingers in the classroom and laboratory; work in areas subject to dust, mists, fumes, noise, chemicals, caustics, and allergenic materials. **PERIPHERAL:** Frequently: sit, to operate computers and other office and laboratory equipment.

**Faculty Salary Schedule, subject to placement at date of hire.**

**FLSA exempt.**

**SCFA bargaining unit status.**

**Classification III, Bloodborne Pathogens Exposure Control Program.**