SIERRA COLLEGE

Job Description

JOB TITLE: Geology and Earth Science Instructor

LAST REVISED: JUNE 1993

DEFINITION
Under administrative direction of an educational administrator, to develop curriculum, provide lecture and laboratory instruction, and evaluate student performance of students engaged in the study of geology and earth science and other related courses, as directed, and to perform related work, as required.

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, availability of equipment and materials, changes in laws, regulations and standards, and the needs of industry and society; coordinate with adjunct faculty 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.

Lecture/ Laboratory/ Field Preparation - **ESSENTIAL**: Review and evaluate new textbooks for content, readability, and cost effectiveness; select textbooks and/or laboratory and field manuals determined to be the most useful and appropriate; complete book order forms and provide the District bookstore with master copies of syllabi for printing; place appropriate reference items on reserve in the library; prepare lesson plans to be used in a lecture and/or coordinate lectures with laboratory learning assignments; prepare lists of laboratory materials needed and supply Instructional Assistant(s) with a materials listing and schedule of laboratory protocols; determine whether laboratory electrical equipment is functioning properly; 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 and/or in the field (e.g., rocks, mineral and fossil samples, maps, magnifiers, goniometers, rulers, hardness kits, acids, etc.), properly label specimens and materials, prepare solutions, chemicals, and other media, check availability and operation of equipment needed, particularly saws, polishers, microscopes, Geiger counters and compasses, clean, calibrate and check equipment and return items and equipment to proper storage areas after classroom, laboratory and field use; practice proper techniques for handling of hazardous materials, and recognize hazards associated with some materials (e.g., poisonous chemicals/compounds, bacteria, radioactivity, etc.); check materials and equipment setups before each laboratory and/or field session to determine suitability for use; select specific "real world" site locations suitable for geological, geographic and paleontological investigation and instruction; arrange transportation for off-campus field trips (e.g., bus, van, boat, etc.); plan routes to be followed on extended field trips and make necessary arrangements for overnight accommodations (e.g., camp site or other lodging, meals, etc.); acquire wilderness permits, as necessary, and otherwise make arrangements for site authorizations at paleontological digs, mines, National Parks, etc., to facilitate extended on-site learning; maintain and/or coordinate with Instructional Assistant(s) and/or student help to acquire and maintain equipment needed for field trips (e.g., citizens-band radios and antennas, van rack nets, tool boxes, first-aid kits, ice chests, water containers, etc.); select and provide students with materials used in field investigation (e.g., maps, magnifiers, goniometers, rulers, hardness kits, etc.); make arrangements for payment of various fees, as necessary (e.g., camp site, museum and boat fees, etc.); attend and/or host 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 prepare 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, laboratory or field use; prepare typewritten and/or graphic handouts and/or transparencies for classroom, laboratory or field use; take slides of geological/geographical features and phenomena for use in instructing students in earth science topics; assemble slide programs comprised of slides taken personally at sites as well as those purchased from vendors; as authorized, purchase, collect, prepare and curate rocks, minerals, fossils, maps and globes to be used in classroom, laboratory and field instruction; procure materials for, create and build appropriate displays and models for the District museum to illustrate various aspects of geology, geography, paleontology and other earth science topics and disciplines and to promote laboratory and incidental learning; perform paleontological field work, as appropriate. **PERIPHERAL**: 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 protocols 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, including computers and pertinent software applications; collect rock, mineral and fossil specimens and perform taxonomic research at other institutions, as authorized and directed; interact with other teaching professionals to update and improve teaching skills.

Lecture/ Laboratory/ Field Presentation - **ESSENTIAL**: Introduce and present lecture/laboratory/field information and concepts in a clear and logical manner; use analogies and/or examples to convey important geological, geographical, or paleontological concepts; provide instructional objectives to direct student learning; outline major points of information on board, overhead projector, slide and film projectors, videotapes, maps, globes, or rock, mineral or fossil samples; enhance presentations with visual aids and/or demonstrations and/or examples, as available; 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, laboratory and field discussions; provide equal opportunity for student participation; monitor student activity and take steps to prevent and/or control unacceptable behavior and maintain an adult classroom atmosphere; design and develop new classroom/laboratory/field exercises to demonstrate major geological, geographical, or paleontological concepts; promote use of the scientific method in all laboratory protocols; demonstrate laboratory/field techniques and safe operation of equipment; perform and/or help students to perform set up, operation, and troubleshooting of laboratory/field material and equipment problems and monitor laboratory/field activities, assisting as necessary; troubleshoot equipment set-up and operation and make modifications and/or substitutions to allow completion of protocols and collection of data; identify and discuss characteristics of rock, mineral and fossil specimens and materials in the classroom, laboratory and field; identify features, characteristics and structures as viewed through a microscope; interpret and explain geological, geographical or paleontological data being collected, and acknowledge and explain variations; move around in the laboratory and in the field, working with students; stay physically present in the laboratory and in the field, to supervise activities; demonstrate safe laboratory and field techniques and safe operation of equipment; advise students of hazards associated with electrical equipment, chemicals, etc. **PERIPHERAL**: Deliver lectures to District or external groups and organizations on earth science topics, as requested and authorized; may lead club field trips and/or function as club faculty advisor, as feasible.

Student Performance Evaluation - **ESSENTIAL**: Develop quizzes, tests and laboratory/classroom examinations which are understandable, which fairly evaluate student progress, and which inspire effort towards progress and success; 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, and mark and grade papers accordingly; assign, read and evaluate homework assignments/projects to promote learning; tabulate scores and assign official grades; 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**: 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; provide input regarding capital outlay and supply budgetary items and assist in purchasing processes to procure equipment and supplies, as required; assist in supervising Instructional Assistants, part-time instructors, and student and other temporary help. **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; participate in and/or coordinate with the Natural History Museum Committee and other museum-related activities; review and/or provide input for environmental impact report (EIR) documentation, as requested. **PERIPHERAL**: Provide students with letters of recommendation, as requested; hold review sessions of classroom/laboratory material, as necessary; advise and encourage students relative to Earth Science Department curriculum; provide opportunities for participation in field trips and/or club activities.

MINIMUM QUALIFICATIONS

Licenses/Credentials:
ESSENTIAL: Incumbent must possess or be able to obtain prior to appointment in this position a valid California Class C or higher Driver's License to accomplish official travel in District and/or privately owned vehicles, including utilization of District vehicles for field trips. Accordingly incumbent of this position may be covered by and required to meet drug testing requirements of the Omnibus Transportation Act if transporting students.

Degrees/Experience:
ESSENTIAL: Master's degree in geology, geophysics, meteorology, oceanography, or paleontology **OR** Bachelor's degree in geology **AND** Master's degree in geography, physics, or geochemistry OR the equivalent.

Knowledge of:
ESSENTIAL: Geological, geographical, paleontological and other earth science concepts and topics and their interrelation; laboratory preparation procedures; operation of laboratory equipment utilized to record geological, geographical, paleontological and other earth science phenomena/data; scientific methodology; teaching practices, methods, and techniques; laboratory equipment calibration procedures; laboratory hazards and appropriate safety protocols; operation of rock saws, polishers, Geiger counters, seismographs, and other earth science equipment, as necessary. **PERIPHERAL**: Computer operation, particularly word processing applications.

Ability to:
ESSENTIAL: Lecture in front of large groups of students; explain geological, geographical, paleontological and other earth science concepts and processes in a logical, sequential fashion; operate, troubleshoot, test, and calibrate laboratory, audio-visual and specialized testing equipment; correctly interpret geological, geographical, paleontological and other earth science data and draw accurate conclusions; prepare laboratory equipment, materials, and specimens; provide students with a "hands on" learning experience in a laboratory setting; recognize the need to provide students with "total immersion" in field activities; form and maintain effective working relationships with peers, staff and students; work independently to solve problems. **PERIPHERAL**: Operate a computer (including word processing software); recognize variation in student backgrounds, abilities, and learning styles; be patient with students; maintain integrity, honesty, reliability, and cooperation.

Physical Suitability Requirements:
ESSENTIAL: Incumbent must be able to perform work in the confines of a classroom and/or laboratory environment or outdoors in a field environment and to perform the following, with or without reasonable accommodation: Constantly: maintain cardiovascular fitness to reach locations for instruction during field trips; Frequently: Utilize vision (near) for reading printed materials and computer screens and for observing geological, geographical, paleontological, and other earth science phenomena and processes through a microscope and/or in a laboratory/field setting; reach (overhead and low) to operate equipment, obtain/store laboratory materials, present lecture information and obtain specimens during field trips; stand, sit, walk and turn to present lectures, other instruction, and to deliver instructional materials in the classroom, laboratory and in the field; 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. Occasionally: utilize vision (far) for making observations during field trips. **PERIPHERAL:** Frequently: sit, to operate computers and other office and laboratory equipment; Occasionally: climb and squat to provide instruction at locations during field trips; wear protective equipment to protect face, eyes, arms, hands and fingers in the classroom, laboratory, and during field trips; ability to work in areas subject to dust, mists, fumes, noise, chemicals, caustics, allergenic plants/materials and animal bites.

Faculty Salary Schedule, subject to placement at date of hire.
FLSA exempt.
SCFA bargaining unit status.
Classification III, Bloodborne Pathogens Exposure Control Act.