



Job Description

JOB TITLE: Astronomy Instructor (Specialization: Descriptive and Observational Astronomy)
LAST REVISED: MARCH 1997

DEFINITION

Under minimum administrative direction of an educational administrator, develops curriculum, provides lecture and laboratory instruction, and evaluates student performance of students engaged in the study of descriptive, observational, and other related astronomy and other related courses, as directed.

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/Departmental budget constraints and availability of equipment and materials; coordinate with part-time instructors to enhance consistency of lecture/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 concordance with changes in laws, regulations, and standards.

Lecture/ Laboratory/Field Preparation - ESSENTIAL: 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; review and select and/or prepare computer and audio-visual materials for classroom/laboratory use; attend conferences to increase knowledge of subject matter and teaching methods and techniques; determine whether laboratory instruments such as telescopes and other optical devices are functioning properly; prepare star charts; clean, calibrate, and check equipment and return items and equipment to proper storage areas; adjust, calibrate, and maintain Planetarium star projection system in working order; coordinate with Instructional Assistant(s) to maintain the Mobile Science Laboratory and associated equipment, as needed. **PERIPHERAL:** Review and evaluate new textbooks for content, readability, and cost effectiveness; select textbooks and/or laboratory manuals determined to be the most useful and appropriate; 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; prepare typewritten and/or graphic handouts and/or transparencies for classroom/ laboratory use; coordinate and confer with book publishing company sales representatives providing instructional materials; familiarize self with operation of all equipment currently available for use and which is appropriate for the subject area. Introduce and present lecture/laboratory information and concepts in a clear and logical manner; use analogies and/or examples to convey important astronomical concepts; provide instructional objectives to direct student learning; outline major points of information on board and/or overhead projector and/or multimedia/ computer equipment; enhance presentations with visual aids and/or demonstrations and/or examples, as available; implement use of computers with telescopes and charged coupled device (CCD) imagery equipment; 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 discussions; monitor student activity and take steps to prevent and/or control unacceptable behavior; design and develop new laboratory exercises and/or observational programs to demonstrate major astronomical concepts; promote use of the scientific method in all laboratory protocols; help students to set up, operate, and troubleshoot observational equipment problems; provide equal opportunity for student participation; move around laboratory, working with students; stay physically present in laboratory to supervise activities; demonstrate safe laboratory/observational techniques and operation of equipment; handle fragile equipment, as necessary; coordinate off-site observatory use; advise students of hazards associated with improper use of electrical equipment and functioning in dark conditions necessary for effective observation of astronomical phenomena.

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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 and mark and grade papers accordingly; assign, read, and evaluate homework assignments/projects to promote learning; tabulate scores and assign official grades; advise students on academic matters regarding their performance; refer students to appropriate student services (e.g., EEL, EOPS, etc.). **PERIPHERAL:** Input student scores into a microcomputer (including use of word processing software packages/applications) 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 (e.g., employment process position questionnaires, unit planning guides, 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. **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; contribute to the advancement of the Sierra College Natural History Museum, as appropriate and feasible; 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; read and responds 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; participate in museum program series and/or other activities and provide opportunities for participation in field trips and/or club activities.

MINIMUM QUALIFICATIONS

Degrees/Experience:

ESSENTIAL: Master's degree in Physics, Astronomy, or Astrophysics **OR** Bachelor's degree in Physics, or Astronomy **AND** Master's degree in Engineering, Mathematics, Meteorology, or Geophysics **OR** the equivalent.

Licenses:

ESSENTIAL: Incumbent must possess or be able to obtain prior to employment in this position a valid California Class C or higher Driver's License in order to accomplish official travel in District and/or privately owned vehicles.

Knowledge of:

ESSENTIAL: Descriptive and observational astronomy, both planetary and stellar; laboratory preparation procedures; operation of laboratory equipment utilized to conduct appropriate laboratory activities, including telescopes and other optical equipment used to view astronomical phenomena; astronomical field studies programs; microcomputer operation, including word processing software packages/applications; scientific methodology; teaching practices, methods, and techniques; laboratory equipment calibration procedures; laboratory hazards and appropriate safety protocol. **PERIPHERAL:** Procedures utilized to properly handle sensitive optical equipment and to work in dark environments necessary for optimal viewing of astronomical phenomena.

Ability to:

ESSENTIAL: Lecture in front of large groups of students; explain appropriate details and their relationships in a logical, sequential fashion; prepare laboratory equipment, materials, and charts; provide students with a "hands



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on" learning experience in a laboratory setting and in field studies programs; form and maintain effective working relationships with peers, staff, and students; work independently to solve problems; operate a microcomputer to utilize specialized telescope interfacing software packages/applications. **PERIPHERAL:** Operate a microcomputer to utilize word processing packages/applications; 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 function indoors in a classroom/laboratory environment and outdoors in a field environment engaged in work of primarily a moderately active to active nature and to do the following, with or without reasonable accommodation: Almost Constantly: Stand, sit, walk and turn to deliver lectures, other instruction, or instructional materials; utilize speech and hearing for ordinary and telephonic conversation with students and others and to respond to questions; speak in an understandable voice; utilize vision (near) to read written materials and computer screens and operate equipment; maintain cardiovascular fitness in order to engage in field activities involving physical effort such as hiking, climbing, wading, digging, etc. Frequently: Reach (from overhead, level, and low) to operate equipment and prepare laboratory materials; lift (from overhead, waist, and floor levels, 50 lbs. max.), carry (50 lbs. max.), push, pull, stoop, squat, and bend to move and operate equipment and prepare laboratory materials; utilize manual and finger dexterity to operate microcomputers, telescopes, other office and laboratory equipment, and to prepare laboratory materials; wear appropriate personal protective equipment to work in areas subject to exposure to risk of shock from electrical equipment, exposure to dark conditions, and exposure to dust, mists, fumes, noise, chemicals, caustics, extremes of heat or cold, allergenic plants/materials, and insect stings. Occasionally: Utilize vision (far) and manual and finger dexterity to operate a motor vehicle while engaged in official travel and field activities; hike and climb to heights above ground level while engaged in field activities.

Faculty Salary Schedule, subject to placement at hire.

SCFA bargaining unit status.

FLSA exempt.

Class III, Bloodborne Pathogens Exposure Control Program.