

COLLECTION DEVELOPMENT CRITERIA

Written Criteria: **PHYSICAL SCIENCE**
Academic year: 2009--2010
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A. GEOLOGY

General criteria

1. Obtain materials suitable for the lay reader or general audience as well as advanced materials.
2. Spanish-language materials may be purchased if they pertain to Mexico only.
3. Materials should focus on Mexico, Texas or the Gulf Coast.
4. Do not purchase introductory or basic textbooks.
5. Materials requested for faculty research.

Specific criteria

Acquire titles on the following topics:

1. Physical geology
 - a. description of materials composing the earth
 - b. classification/analysis of geologic agents responsible for the origin, structure and evolution of the earth's crust
[GEOL 1401] Physical Geology
2. Historical geology, invertebrate paleontology, stratigraphy-sedimentation
 - a. geological history of the earth and its inhabitants revealed in fossils records emphasizing North America
 - b. study fossils—morphology, classification, ecology and geologic history.
Comparison of living and fossil forms.
 - c. sedimentary processes and principles of stratigraphy
[GEOL 1402] Historical Geology
[GEOL 3404] Stratigraphy-Sedimentation
3. Structural geology, geomorphology
 - a. architecture of the earth and causes of deformation
 - b. analysis of the land forms of the earth and the process by which they are made
[GEOL 2401] Geomorphology
[GEOL 2402] Structural Geology
4. Mineralogy and petrology

- a. major mineral groups, their atomic structure, chemical composition, external forms, properties and geologic interpretation
- b. major rock groups, their origin, classification, chemical, and physical properties
[GEOL 3401] Mineralogy
[GEOL 3405] Petrology
5. Oceanography (origins, motions, physical and chemical properties of marine water)
[GEOL 3403]
6. Environmental Geoscience (human-planet relationship, the interactions of humans and earth systems.)
[GEOL 1304, GEOL 1403]
7. Geographic Information Systems (input, management, manipulation, and output of georeferenced information using digital computers)
[GEOL 3408] Introduction to GIS
[GEOL 4408] Applications of GIS
8. materials for faculty research

B. GEOGRAPHY

General criteria

1. Order materials which would appeal to the general reader.
2. Excerpt for titles considered to be “classics”, purchase materials published within the last three years.
3. Publications of scientific societies may be acquired.
4. Government publications, particularly on physical geography, are acceptable.
5. Do not purchase materials on historical, cultural, or economic geography.
6. Materials requested for faculty research.

Specific criteria

Acquire materials on the following topics:

1. General geography and physical geography (major emphasis)
 - a. description of the earth’s surface and its features in terms of their distribution
 - b. climatology/meteorology, environmental pollution, and water, mineral and energy resources
[GEOG 2313] Principles of Physical Geography
2. Materials for faculty research

C. **PHYSICAL SCIENCE (GENERAL)** and **PHYSICS**

General criteria

1. Both theoretical and experimental texts treating the subject areas listed in the specific criteria listed below can be acquired.
2. In general, do not purchase popularizations.
3. Do not purchase so-called “library of science” materials, either in parts or in sets.
4. Publications of scientific societies, both American and European, may be acquired.
5. Except for publications, which are considered to be “classics”, purchase materials published during the last three years.
6. Do not purchase materials on nuclear physics.
7. Materials requested for faculty research.

Specific criteria

Acquire materials on the following topics:

1. General physical science (introductory materials on astronomy, chemistry, geology, and physics, meteorology, mechanics, electricity, light, astronomy and relativity, quantum physics and atomic structure).
[PSCI 1421, PSCI 1422] Physical Science
[PSCI 2408] Survey of Physical Science
[PSCI 4311] Topics in Physical Science
2. General physics and modern physics.
 - a. principles of mechanics, fluids, heat, waves, sound, electricity, magnetism, light
 - b. relativity, physics of atoms, solids and other 20th century topics
[PHYS 1401, PHYS 1402] General Physics
[PHYS 2301, PHYS 2302] Intermediate Physics
[PHYS 3402] Modern Physics
3. Electrostatics, magnetic properties of material, units, and thermoelectricity, alternating current, oscillating circuits, electromagnetic radiation, and Maxwell’s equation.
[PHYS 3301, PHYS 3302] Electromagnetic Theory
4. Heat measuring devices, thermal expansion, behavior of gases, elementary thermodynamics, change of state, specific heats and transfer of heat.
[PHYS 3303] Heat and Thermodynamics
5. Particle motion in one, two and three dimensions; motion of a system of particles, conservation laws, statics of fluids and solids, motion of rigid bodies.
[PHYS 3305] Mechanics I
6. Diffraction, interference, polarization, beginning spectroscopy and geometrical optics.
[PHYS 3304] Optics
7. Recent developments in physics, including atomic energy, nuclear structure, X-rays, cosmic rays, high energy physics, radioactivity, and problems and progress in contemporary physics
[PHYS 4301] Topics in Modern Physics

[PHYS 3402] Modern Physics

[PHYS 4308] Seminar in Physics

8. materials for faculty research

D. ASTRONOMY

General criteria

1. Order only English-language titles.
2. Materials appealing to the general reader are acceptable.
3. Materials requested for faculty research.

Specific criteria

Acquire titles published since 1989 to support ASTR 1401 and ASTR 1402 on the following topics:

1. Cosmology (including big bang and other theories on the origin or nature of the universe), stellar evolution, neutron star, black holes.
2. Evolution of the solar system, comets, asteroids, meteors, general astrophysics.
3. Retrospective or current titles on the history of astronomical observation and theories, i.e. prior to the Greeks, the Greeks, Copernicus, Galileo, Kepler, Tycho-Brahe, Newton, and up to 1935.
4. Current histories of astronomical exploration (manned/unmanned), use of space satellites, etc.
5. Current descriptive catalogs, observer's handbooks.
6. Order titles by major authors (academic and popular), for instance:
 - a. Stephen Hawking (British astrophysicist)
 - b. Donald Goldsmith
 - c. Carl Sagen (futurology, National Space, Society)
 - d. J. Ashbrook (history of astronomy)
 - e. D Abbott (history of astronomy)
 - f. R. Brendzen (history of astronomy)
 - g. M. Grosser
7. materials for faculty research