

Earth Sciences/Geology

SUMMARY OF IDENTIFIED ISSUES

Earth Sciences/Geology faculty met at three of the IMPAC regional meetings. The main topics of discussion were:

- (1) identifying a core preparatory curriculum for transfer students,
- (2) suggesting possible revision of CAN descriptors for required Earth Sciences courses, and
- (3) emphasizing the necessity of creating a preparatory pattern (similar to IGETC) for Science major transfer students.

IDENTIFIED TRENDS/FUTURE DIRECTIONS

Earth Science curriculum (especially in the upper division coursework) is becoming increasingly quantitative in nature. It is therefore imperative that California community college students complete as much as possible of their preparatory coursework in Calculus, Physics, and Chemistry prior to transferring to four-year colleges and universities.

COMMENTS FROM STATEWIDE MEETINGS AND THE GENERAL FIELD

Earth Science did not meet at the statewide meeting this year.

RECOMMENDATIONS FOR THE DISCIPLINE

1. All lower division Geology/Earth Science majors need a full year of Calculus, Chemistry, and Physics (with Calculus), as well as one course in Physical Geology (with lab) and one course in Historical Geology (with lab).
2. Transfer students should complete most, if not all, these preparatory courses at the California community colleges. This message should be aggressively publicized in the publications and on the websites of four-year universities for the benefit of community college students, counselors, and articulation officers.
3. We need to create a sciences equivalent of IGETC that would have California community college students completing their science preparatory courses prior to transfer.
4. CAN descriptors for Physical and Historical Geology (CAN GEOL 2,4,6, and 8) have been tentatively revised to emphasize geologic process as opposed to a “shopping lists” of topics to be covered. Faculty should review these recommendations during the 2002-2003 academic year; participants at the statewide meeting in spring 2003 should be prepared to finalize these suggested revisions.

CAN: GEOL 2

Title: Introduction to Physical Geology w/lab**Description:** Physical geology includes the study of plate tectonics, rocks and minerals, weathering, mass-wasting, surface and ground water, wind, waves and currents, glaciation, mountain building, volcanoes and other igneous activity, deformation and resulting structures, earthquakes, Earth's interior, geologic time, and earth resources. The laboratory component should include rock and mineral identification, interpretation of topographic and geologic maps and may include other geologic topics.**Revised Title:** Physical Geology w/lab (More consistent with other titles below.)**Revised Description:** Physical geology introduces the processes that are at work changing the Earth today. Within the context of global tectonics, it explores the origins of rocks and minerals and the dynamics of processes such as igneous activity, seismicity, and crustal deformation that are driven by the release of Earth's internal heat. It also examines how air, water, and ice move in response to gravity and energy from the Sun, sculpting Earth's surface by eroding, transporting, and depositing weathered rock materials. Lab exercises will include the identification of rocks and minerals, the interpretation of topographic and geologic maps, and related geologic topics.

CAN: GEOL 4

Title: Historical Geology w/lab**Description:** Historical geology includes the study of the origin and evolution of Earth and its biosphere, incorporating plate tectonics, stratigraphy, paleontology, geologic dating, etc. The laboratory component should include the study of fossils and rocks, geologic maps, and the interpretation of ancient environments.**Revised Description:** Historical geology introduces Earth's history and that of the life it supports. Drawing on concepts from geologic dating, global tectonics, and stratigraphy, it explores the planet's origin and the processes that have repeatedly re-shaped the global environment during the past 4.5 billion years. It also reviews fossil evidence for the origin of life on Earth, and for the complementary roles played by natural selection and environmental change in shaping both ancient and modern living communities. Lab exercises will include studies of rocks, fossils, the interpretation of ancient environments, and regional geologic history.

CAN: GEOL 6

Title: Physical Geology — Lecture only**Description:** Physical geology includes the study of plate tectonics, rocks and minerals, weathering, mass-wasting, surface and ground water, wind, waves and currents, glaciation, mountain building, volcanoes and other igneous activity, deformation and resulting structures, earthquakes, Earth's interior, geologic time and earth resources.**Revised Description:** Physical geology introduces the processes that are at work changing the Earth today. Within the context of global tectonics, it explores the origins of rocks and minerals and the dynamics of processes such as igneous activity, seismicity, and crustal deformation that

are driven by the release of Earth's internal heat. It also examines how air, water, and ice move in response to gravity and energy from the Sun, sculpting Earth's surface by eroding, transporting, and depositing weathered rock materials.

CAN: GEOL 8

Title: Historical Geology — Lecture only

Description: Historical geology includes the study of the origin and evolution of Earth and its biosphere, incorporating plate tectonics, stratigraphy, paleontology, geologic dating, etc.

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TOPICS FOR FURTHER DISCUSSION

1. Finalize revision of CAN descriptors.
2. Work with other disciplines to develop science version of IGETC

RECOMMENDATIONS TO BE FORWARDED

None at this time.