

UNIVERSITY OF CINCINNATI
BULLETIN

Annual Catalogue
of
All Colleges



*Calculus
required
for
graduate
school*

1955-1956

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GEOLOGY AND GEOGRAPHY

Professors RICH* (36 Old Tech), JENKS (*Head of Department*, 29 Old Tech), CASE (25 Old Tech), BARBOUR (137 McMicken), COULTER (8 Old Tech), CASTER† (2-C Old Tech); Associate Professor SUNDERMAN (31 Old Tech); Assistant Professor DURRELL (35 Old Tech); Acting Assistant Professor BANKS (2-C Old Tech); Acting Assistant Professor GROSS (33 Old Tech); Instructors WOLF (23 Old Tech), HODGKINS (7 Old Tech); Museum Curator BROOKS (5 Old Tech).

Fields of concentration, leading to the degree of B.A. or B.S., are offered in geology and in geography.

The beginning courses in geology are planned as broad cultural surveys of the earth and its history—the processes which shape its surface and mold its landscapes; minerals and rocks; some of the important mineral resources; and the history of development of life as revealed by the fossil record. Geol. 101-2, 111-2 is the basic course preliminary to the advanced courses in the Department.

The beginning course in Geography, Geog. 100, is planned as a broad cultural survey of man-land relationships including the problems which confront the peoples of the world in using to best advantage the resources of their environment. On completing it, the student is permitted to enter any of the other courses in geography except 577-8.

A student wishing to major in geology shall present Geol. 101-2, 111-2 or its equivalent. He will then continue with 301-2, 321-2, 317 (318, 319), and 501-2. Further courses in geology and their sequence will depend upon the plans and the interest of the student. For all students planning geology as a profession, a five- or eight-week summer field course, mathematics through calculus, introductory chemistry, and introductory physics are most strongly recommended.

Among the nongeological courses recommended to students who will concentrate in geology are the following (preference depending in part on fields of concentration): Chem. 101-2, 111-2; Phys. 101-2, 111-2; Zool. 101-2, 111-2, 317, 320; Bot. 101-2, 111-2, 421-2, 553-4; Geog. 410 or one of the regional courses in geography; mathematics through calculus; Astr. 101-2; German 001-2 and 011-2; Econ. 101-2; Phil. 121-2.

A student wishing to major in geography shall present Geog. 100 or its equivalent, Geol. 101-2, 111-2 or its equivalent, Geog. 501-2. Further courses in geography and their sequence will depend upon the plans and the interest of the student.

Among the nongeographical courses recommended to students who will concentrate in geography (preference depending partly on field of concentration) are the following: Geol. 443-4, 448, 449, 980; Hist. 107-8, 207-8, 227-8, 447-8, 527-8; Econ. 101-2, 317, 410;

*Professor Emeritus.

†Absent on leave, 1955-56.

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Pol. Sc. 111-2, 261, 471-2; Soc. 101-2, 230, 301-2, 340, 411-2, and 941-2.

Each autumn the Department conducts a three- or four-day field trip which all advanced students in the Department are expected to attend.

Five-Year Co-ordinated Program in Geology. Students looking toward a professional career in geology are urged to follow a special co-ordinated program (described on page 33), designed to meet the requirements for employment in the oil industry or mining or geological engineering. In this program, a student receives training in geology, the fundamentals of mathematics through calculus, chemistry through quantitative analysis, physics, mechanics, and surveying. Some of the work will be chosen from the "Degree" courses in engineering offered by the Evening College. All courses have been so scheduled as to provide a logical sequence of subjects and produce a uniformly distributed load. A considerable latitude of choice is possible in the last three years, but changes should be made only after consultation with the Head of the Department of Geology. On the satisfactory completion of four years' work, the student will receive the degree of Bachelor of Science in Geology and, after an additional year of successful study in the Graduate School, he will receive the degree of Master of Science. (See also page 33.) Students contemplating entering this course should consult in advance the Head of the Department of Geology and Geography who serves as their adviser throughout the course. The program should be started in the freshman year.

GEOLOGY

15-040

101-2. INTRODUCTION TO GEOLOGY. Prerequisite to all other geology courses except Geol. 103-4, 109, 301-2, and 425-6. It is not prerequisite to any geography courses, but is required of geography majors. With Geol. 111-2, it satisfies the science requirement. Geol. 101-2 and 111-2 form two parts of a single ten-credit course. With the instructor's permission, however, students who do not offer geology in fulfillment of the science requirement may take 101-2 alone. Lecture, MWF 8:30. Mr. Durrell.

111-2. INTRODUCTION TO GEOLOGY LABORATORY. A laboratory course to accompany Geol. 101-2. With the instructor's permission, transfer students and other qualified students may take the course without the lectures (101-2). MW 1:30-4:30; TTh 1:30-4:30. 2 crs. each sem. Mr. Durrell and assistants.

103-4. GENERAL GEOLOGY. An elementary course for general students not expecting to do further work in the subject; fulfills the science requirement only if taken in combination

- GEOL. 448. WORLD PHYSIOGRAPHY. Study of selected regions in geomorphic terms. (Alternates with Geol. 444.) Prerequisite: Geol. 101-2, 111-2, or equivalent. Three graduate credits. Second semester, M 1:30-4:00. Mr. Barbour.
- GEOL. 449. PRINCIPLES OF GEOMORPHOLOGY. The interpretation of landscapes, especially as governed by geologic and climatic conditions. (Alternates with Geol. 443.) Prerequisites: Geol. 101-2, 111-2, or equivalents. Three graduate credits. First semester, M 1:30-4:00. Mr. Barbour.
- *GEOL. 469. COMMON ROCKS. Use of megascopic characteristics to identify igneous, sedimentary, and metamorphic rocks and to interpret their conditions of origin and subsequent alteration. Three graduate credits. First semester, lecture, T Th 9:30; laboratory, F 1:30-4:30. Mr. Sunderman.
Prerequisites: Geol. 101-2, 111-2, 301-2, or equivalents.
- GEOL. 470. BASIC SEDIMENTATION. Principles governing the origin, transportation, deposition, and subsequent alteration of sediments, with particular emphasis on the physical and chemical environments of accumulation. Three graduate credits. Second semester, lecture, T Th 9:30; laboratory, F 1:30-4:30. Mr. Sunderman.
Prerequisites: Geol. 101-2, 111-2, 301-2, and 469, or equivalents.
- GEOL. 503, 504. DEPARTMENTAL SEMINAR. Required of all graduate students in geology. No additional credit. Th 4:30.
- GEOL. 561-2. ECONOMIC GEOLOGY. Mineral fuels, useful non-metals, and ore deposits. (Alternates with Geol. 980.) A two weeks' field trip at end of spring semester. Lecture, M W 10:30; laboratory, W 1:30-4:30; F 8:30-11:30. Four graduate credits first semester, five graduate credits second semester. Mr. Jenks.
Prerequisite: Geol. 401-2 or equivalent.
- GEOL. 589. STRUCTURAL GEOLOGY. Principles of rock deformation; geologic measurements; applications of descriptive geometry; methods of determination of structure in the field, including practice in field work. Four graduate credits. First semester, lecture, M W 8:30; laboratory, M 4:30-6:00; F 8:30-11:30. Mr. Sunderman.
Prerequisites: Geol. 101-2, 111-2, or equivalents.
- GEOL. 909. METAMORPHIC GEOLOGY. Changes produced in rocks by weathering and metamorphism, including microscopic examination of the minerals and internal structures of meta-

*Supplementary work is required of graduate students electing this course.

- orphic rocks. For 8:30. Laboratory Prerequisite: Geol.
- GEOL. 910. ADVANCED mathematical relations of minerals not covered 906.) Three graduate credits. Prerequisite: Geol.
- GEOL. 921-2. STRATIGRAPHY and a stratigraphy and a North America. Th 4:30-6:00. Mr. Band. Prerequisites: Geol.
- GEOL. 971, 972. INDIVIDUAL on amount of work. Geology Staff.
- GEOL. 973. FIELD RESEARCH field under direction of
- For Advanced Undergraduate*
- *GEOG. 310. CARTOGRAPHY. map making; map compilation; in teaching and research. Three graduate credits. Tu 3:30; laboratory hours
- *GEOG. 311, 312. GEOGRAPHY of North America; present possibilities as related to graduate credits each semester. Additional hour to be arranged.
- *GEOG. 317. GEOGRAPHY OF relationships in South America; cultural factors, with particular political, and demographic nations. Three graduate credits. 10:30. Mr. Wolf.
- *GEOG. 327. GEOGRAPHY OF stressing occupations and environment. Three graduate credits. 1:30. Mr. Coulter.
Prerequisite: Geog. 100 or

*Supplementary work is required of graduate students electing this course.

morphic rocks. Four graduate credits. Second semester, M W 8:30. Laboratory hours to be arranged. Mr. Sunderman.
Prerequisite: Geol. 401-2 or equivalent.

GEOL. 910. ADVANCED MINERALOGY. Morphological and mathematical relations of crystals. Systematic survey of important minerals not covered in Geol. 301-2. (Alternates with Geol. 906.) Three graduate credits. Second semester. Mr. Gross.
Prerequisite: Geol. 301-2 or equivalent.

GEOL. 921-2. STRATIGRAPHIC GEOLOGY. The basic principles of stratigraphy and a survey of the stratigraphic history of North America. Three graduate credits each semester. Tu F 4:30-6:00. Mr. Banks.
Prerequisites: Geol. 321-2, 425-6, or equivalents.

GEOL. 971, 972. INDIVIDUAL WORK IN GEOLOGY. Credit depends on amount of work done. May be entered either semester. Geology Staff.

GEOL. 973. FIELD RESEARCH IN GEOLOGY. Summer work in the field under direction of the Staff. One to six graduate credits.

GEOGRAPHY

For Advanced Undergraduate and Graduate Students

*GEOG. 310. CARTOGRAPHY. An introduction to maps and map-making; map compilation and design; maps as a useful tool in teaching and research. Brief survey of the history of map-making. Three graduate credits. First semester. Lecture, Tu 3:30; laboratory hours to be arranged. Mr. Wolf.

*GEOG. 311, 312. GEOGRAPHY OF NORTH AMERICA. The regions of North America; present economic development and future possibilities as related to climate, relief, and resources. Three graduate credits each semester. W 4:00-6:00 and one additional hour to be arranged. Mr. Case.

*GEOG. 317. GEOGRAPHY OF SOUTH AMERICA. Man-land relationships in South America; the interrelationship of physical and cultural factors, with particular emphasis on regional economic, political, and demographic problems of the South American nations. Three graduate credits. Second semester, M W F 10:30. Mr. Wolf.

*GEOG. 327. GEOGRAPHY OF EUROPE. A regional study of Europe stressing occupations and culture as related to the natural environment. Three graduate credits. First semester, M W F 1:30. Mr. Coulter.
Prerequisite: Geog. 100 or equivalent.

*Supplementary work is required of graduate students electing these courses.

*GEOG. 420. POLITICAL GEOGRAPHY. The relationships of the geographic environment to the territorial organization of political power, with special emphasis on relative location, natural resources, political regions and boundary problems. A critical evaluation of geopolitical concepts. Three graduate credits. First semester, M W F 10:30. Mr. Wolf.

GEOG. 503, 504. DEPARTMENTAL SEMINAR. Expected of all major and graduate students in geography. No additional credit. Hours to be arranged.

Primarily for Graduate Students

GEOG. 977, 978. ADVANCED INDIVIDUAL WORK IN GEOGRAPHY. Advanced problems in topical or regional geography, or in geographic techniques or theory. Credit depends on amount of work done. Geography Staff.

GEOLOGY AND GEOGRAPHY

Courses Omitted in 1955-56

The following courses, offered in alternate years or at longer intervals, will not be given in 1955-56: Geology 209, Geology of Mineral Resources; 443, Physiography of Eastern United States; 444, Physiography of Western United States; 906, Petrology of Igneous Rocks; 925-6, Advanced Megascopic Paleontology; 960, Ground Water; 963-4, Advanced Sedimentation; 979, Geophysics; 980, Interpretation of Aerial Photographs; 982, Glacial Geology. Geography 307, Meteorology; 308, Climatology; 310, Topographic Mapping.

Courses Offered in the Summer School in 1955

*GEOG. 313. PEOPLE AND RESOURCES OF ANGLO-AMERICA. Mr. Wolf.

*GEOG. 352. CONSERVATION OF NATURAL RESOURCES. Mr. Hodgkins.

*GEOG. 415. GEOGRAPHY OF THE FAR NORTH. Mr. Hodgkins.

GEOG. 973, 974. FIELD RESEARCH IN GEOLOGY. Geology Staff.

GEOG. 977, 978. ADVANCED INDIVIDUAL WORK IN GEOGRAPHY. Mr. Hodgkins.

*Supplementary work is required of graduate students electing these courses.

GEOLOGY AND GEOGRAPHY

Professors RICH* (36 Old Tech), JENKS (*Head of Department*, 29 Old Tech), CASE (25 Old Tech), BARBOUR (137 McMicken), COULTER (8 Old Tech), CASTER† (2-C Old Tech); Associate Professor SUNDERMAN (31 Old Tech); Assistant Professor DURRELL (35 Old Tech); Acting Assistant Professor BANKS (2-C Old Tech); Acting Assistant Professor GROSS (33 Old Tech); Instructors WOLF (23 Old Tech), HODGKINS (7 Old Tech); Museum Curator BROOKS (5 Old Tech).

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*Professor Emeritus.

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Pol. Sc. 111-2, 261, 471-2; Soc. 101-2, 230, 301-2, 340, 411-2, and 941-2.

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GEOLOGY

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101-2. INTRODUCTION TO GEOLOGY. Prerequisite to all other geology courses except Geol. 103-4, 109, 301-2, and 425-6. It is not prerequisite to any geography courses, but is required of geography majors. With Geol. 111-2, it satisfies the science requirement. Geol. 101-2 and 111-2 form two parts of a single ten-credit course. With the instructor's permission, however, students who do not offer geology in fulfillment of the science requirement may take 101-2 alone. Lecture, MWF 8:30. Mr. Durrell.

111-2. INTRODUCTION TO GEOLOGY LABORATORY. A laboratory course to accompany Geol. 101-2. With the instructor's permission, transfer students and other qualified students may take the course without the lectures (101-2). MW 1:30-4:30; TTh 1:30-4:30. 2 crs. each sem. Mr. Durrell and assistants.

103-4. GENERAL GEOLOGY. An elementary course for general students not expecting to do further work in the subject; fulfills the science requirement only if taken in combination

- with an elementary course in another science. MW 8:30, F 1:30-4:30. 3 crs. each sem. Mr. Barbour.
- 301-2. MINERALOGY. Crystallography, a study of crystals, their physical and chemical properties. The important minerals, their occurrence, properties, and uses. Blowpipe analysis and chemical testing. Prerequisite: High-school or elementary college chemistry. M 1:30-4:30; TTh 10:30. 3 crs. each sem. Mr. Gross.
- 317, 318, 319. GEOLOGIC DEMONSTRATION TRIPS. A two weeks' field excursion immediately after spring examinations and before Summer School, generally in the Appalachian highlands. Conferences weekly during the following semester and a report to be submitted at the end of the first semester. Special work required for graduate credit. The three numbers designate different routes followed in successive years. Prerequisite: Geol. 101-2, 111-2 or equivalent. 3 crs. for each trip. Mr. Durrell.
- 321-2. PRINCIPLES OF HISTORICAL GEOLOGY. An introduction to the study of the physical and biological history of the earth with particular emphasis on North America. Prerequisite: Geol. 101-2, 111-2 or equivalent. TTh 8:30, Th 1:30-4:30, S 8:30-11:30. 4 crs. each sem. Mr. Banks.
330. ADVANCED GEOLOGY FIELD TRIP. A two weeks' field excursion immediately after spring examinations and before Summer School. Main emphasis on historical and regional geology. Conferences during the following semester and preparation of a comprehensive report to be submitted at the end of the first semester. For students who have already taken a Geologic Demonstration Trip (317, 318, 319) and Geol. 321-2 or equivalent. 3 crs. Mr. _____.
- 401-2. PETROGRAPHY. Principles of crystal optics and recognition of transparent minerals under the microscope. Principles of petrography and classification of igneous, sedimentary, and metamorphic rocks. Mainly thin-section study. Prerequisite: Geol. 301-2 or equivalent. MW 9:30, TTh 1:30-4:30. 4 crs. each sem. Mr. Gross.
- 425-6. INVERTEBRATE PALEONTOLOGY. A systematic survey of the important groups of invertebrate fossils with special emphasis on their zoological character and geologic significance. Prerequisite: Geol. 101-2, 111-2 or equivalent, or a course in biology, zoology, or botany. MW 11:30, MW 1:30-4:30. 4 crs. each sem. Mr. Banks.
448. (2nd sem.) WORLD PHYSIOGRAPHY. Study of selected regions in geomorphic terms. (Alternates with Geol. 444.) Prerequisite: Geol. 101-2, 111-2 or equivalent. M 1:30-4:00. 3 crs. Mr. Barbour.

449. (1st sem.) PRINCIPLES OF CLIMATOLOGY. Interpretation of lands and climatic conditions. Geol. 101-2, 111-2. Mr. Barbour.
469. (1st sem.) CHARACTERISTICS OF METAMORPHIC ROCKS AND TO INTERPRET ALTERATION. Prerequisite: Geol. 101-2, 111-2. Mr. Sunderman.
470. (2nd sem.) BASINS AND TRENCHES. The origin, transportation, and deposition of sediments, and chemical environments. Geol. 101-2, 111-2. 9:30; laboratory, 11:30-1:30.
- 501-2. READINGS FOR GRADUATE STUDENTS IN GEOLOGY. Not open to freshmen.
- 503-4. DEPARTMENTAL RESEARCH ASSISTANTS. For seniors majoring in geology. Additional credit.
- 561-2. ECONOMIC GEOLOGY. Study of the origin and ore deposits. Includes a field trip at end of semester. Prerequisite: Geol. 101-2, 111-2 or equivalent. Lec F 8:30-11:30. 4 crs.
- 571-2. INDIVIDUAL WORK. Amount of work determined by the Geology Staff.
589. (1st sem.) STRUCTURE OF THE EARTH. Formation; geologic structure; geologic geometry; methods of geologic mapping including practice in the field. Prerequisite: Geol. 101-2, 111-2, or equivalent. 4 crs. Mr. Sunderman.
- *909. (2nd sem.) METAMORPHIC ROCKS. Study of rocks by weathering and microscopic examination of metamorphic rocks. MW 8:30; laboratory, 11:30-1:30. Mr. Sunderman. (Code: _____)

*Primarily for graduate students with permission of the instructor.

449. (1st sem.) PRINCIPLES OF GEOMORPHOLOGY. The interpretation of landscapes, especially as governed by geologic and climatic conditions. (Alternates with Geol. 443.) Prerequisite: Geol. 101-2, 111-2 or equivalent. M 1:30-4:00. 3 crs. Mr. Barbour.
469. (1st sem.) COMMON ROCKS. Use of megascopic characteristics to identify igneous, sedimentary, and metamorphic rocks and to interpret their conditions of origin and subsequent alteration. Prerequisites: Geol. 101-2, 111-2, 301-2 or equivalents. Lecture, TTh 9:30; laboratory, F 1:30-4:30. 3 crs. Mr. Sunderman.
470. (2nd sem.) BASIC SEDIMENTATION. Principles governing the origin, transportation, deposition, and subsequent alteration of sediments, with particular emphasis on the physical and chemical environments of accumulation. Prerequisites: Geol. 101-2, 111-2, 301-2, 469, or equivalents. Lecture, TTh 9:30; laboratory, F 1:30-4:30. 3 crs. Mr. Sunderman.
- 501-2. READINGS FOR SENIORS. Required of all seniors majoring in geology. Not open to other students.
- 503-4. DEPARTMENTAL SEMINAR. Required of all juniors and seniors majoring in geology. Optional for sophomores. No additional credit. Th 4:30.
- 561-2. ECONOMIC GEOLOGY. Mineral fuels, useful nonmetallics, and ore deposits. (Alternates with Geol. 980.) Two weeks' field trip at end of spring semester. Prerequisite: Geol. 401-2 or equivalent. Lecture, MW 10:30; laboratory, W 1:30-4:30, F 8:30-11:30. 4 crs. 1st sem., 5 crs. 2nd sem. Mr. Jenks.
- 571-2. INDIVIDUAL WORK IN GEOLOGY. Credit depends on amount of work done. May be entered either semester. Geology Staff.
589. (1st sem.) STRUCTURAL GEOLOGY. Principles of rock deformation; geologic measurements; applications of descriptive geometry; methods of determination of structure in the field, including practice in field work. Prerequisite: Geol. 101-2, 111-2, or equivalent. MW 8:30, M 4:30-6:00, F 8:30-11:30. 4 crs. Mr. Sunderman.
- *909. (2nd sem.) METAMORPHIC GEOLOGY. Changes produced in rocks by weathering and metamorphism, including microscopic examination of the minerals and internal structures of metamorphic rocks. Prerequisite: Geol. 401-2 or equivalent. MW 8:30; laboratory hours to be arranged. 4 crs. Mr. Sunderman. (Code: 14-040)

*Primarily for graduate students. May be taken by qualified undergraduates by special permission of the instructor.

*910. (2nd sem.) ADVANCED MINERALOGY. Morphological and mathematical relations of crystals. Systematic survey of important minerals not covered in Geol. 301-2. (Alternates with Geol. 906.) Prerequisite: Geol. 301-2 or equivalent. Mr. Gross. (Code: 14-040)

*921-2. STRATIGRAPHIC GEOLOGY. The basic principles of stratigraphy and a survey of the stratigraphic history of North America. Prerequisites: Geol. 321-2, 425-6, or equivalents TuF 4:30-6:00. Mr. Banks. (Code: 14-040)

Omitted during 1955-56: 109, Ancient Life; 209, Geology of Mineral Resources; 310, Topographic Mapping; 443, Physiography of Eastern United States; 444, Physiography of Western United States; 906, Petrology of Igneous Rocks; 925-6 Advanced Megascopic Paleontology; 960, Ground Water; 963-4, Advanced Sedimentation; 979, Geophysics; 980, Interpretation of Aerial Photographs; 982, Glacial Geology.

GEOGRAPHY

15-041

The following year-courses may be entered in February with the instructor's permission: Geog. 311-2, 577-8.

100. (1st sem., repeated in 2nd sem.) FUNDAMENTALS OF GEOGRAPHY. A regional analysis and survey of the earth as the home of man. Man's varied relationships to his spatial environment and resources. Basic geographic concepts and principles. Two field trips. Prerequisite for Geog. 308, 327, 337, 358, 399. First semester, MWF 11:30; MWF 1:50; second semester, MWF 2:30. Mr. Hodgkins.

108. (2nd sem.) WORLD GEOGRAPHY. An introductory course in regional human geography. Prerequisite: Geog. 100 or equivalent. MWF 11:30. Mr. Coulter.

310. (1st sem.) CARTOGRAPHY. An introduction to maps and map-making; map compilation and design; maps as a useful tool in teaching and research. Brief survey of the history of map-making. Lecture Tu 3:30 and laboratory hours to be arranged. 3 crs. Mr. Wolf.

311-2. GEOGRAPHY OF NORTH AMERICA. The regions of North America; present economic development and future possibilities as related to climate, relief, and resources. W 4:00-6:00 and one additional hour to be arranged. 3 crs. each sem. Mr. Case.

*Primarily for graduate students. May be taken by qualified undergraduates by special permission of the instructor.

517. (2nd sem) relationships physical and regional ecology South Am

527. (1st sem) Europe stratigraphic natural environment MWF 1:30

537. (1st sem) stressing distribution of environmental resources 9:30. Mr.

538. (2nd sem) geography of the world. Tu 3 crs. Mr.

546. (2nd sem) geographical analysis of human weakness, community of distribution, transportation, recent technological analyzed.

547. (1st sem) of man's utilization of Nations and potential, agricultural development is given to use develop

599. (2nd sem) Geographic rural and urban of field and Open only hours to be

401. (1st sem) advanced study as related to environmental and one ad