

UNIVERSITY OF CINCINNATI BULLETIN

Announcement

of



*Division of
Graduate Studies*

1971-1972

Published by the University of Cincinnati
Van Wormer Administration Building
Cincinnati, Ohio 45221
Telephone 513-475-8000

14-041-878. *Seminar: Growth of Geographic Thought.* Detailed analyses of contemporary methodological problems. 4 gr. cr. Spr. Qtr. Hours to be arranged. Mr. McNee.

14-041-971. *Dissertation Research.* Preparation of the Ph.D. dissertation. Offered ea. Qtr. Hours and credits to be arranged. Staff.

Courses Omitted in 1971-1972: 575, Geographics; 675, Historical Geography of U. S.; 730, Australia and the Southwest Pacific; 772, Seminar: Urban Blight; 781, Seminar: Population; 788, Seminar: Manufacturing.

Geology

Head: Professor Lattman (5C OT); Professors Caster (4A OT), Jenks (32 OT), Larsen (20 OT), Pryor (1 OT); Associate Professors Durrell (33 OT), Huff* (25 OT), Koucky (35 OT), Sunderman (31 OT); Assistant Professors Bullard (10B OT), DeJong (36 OT), Kilinc (20 OT), Warren (304 BSc); Curator and Assistant Professor Davis (2 OT).

The Department offers work leading to the degrees of Master of Science and Doctor of Philosophy.

A student admitted to graduate work in geology is expected to have satisfactorily passed one-year courses in physics and chemistry and an approved course in calculus or statistics. Biology is recommended as preparation for graduate work chiefly in paleontology. A summer field course in geology or its equivalent, such as a summer at a marine biological station for paleontology majors, is required before admission or early in the graduate program. Also a student must have taken GRE and AGRE.

Interviews and early exploratory conferences are required to help determine the student's prior training and aptitude for advanced studies and independent research.

Laboratories for research in paleontology, mineralogy, petrology, geochemistry, geomorphology, remote sensing, and sedimentology afford modern facilities for study. The Geological Museum provides extensive research collections particularly with respect to Paleozoic biota.

A requirement for either graduate degree is the satisfactory completion of a thesis or dissertation describing the results of the student's research work.

By agreement between the Secretary of the Smithsonian Institution and the President of the University of Cincinnati, graduate students in paleontology may apply for summer internships at the United States National Museum, to work with specialists there on subjects of mutual interest. Such work is commonly related to the subject of the student's dissertation. Academic year fellowships at the Smithsonian are sometimes available to outstanding advanced students when the Language and Candidacy examinations at the University are satisfactorily completed. This affords the student opportunity to work under the joint supervision of University and Smithsonian paleontologists. Satisfactory research work under this program carries University graduate credit.

For Advanced Undergraduate and Graduate Students

15-040-037,038,039. *Geology Seminar.* Required of all graduate students majoring in geology. No credit. W 4:00-5:00. Staff.

15-040-521,522,523. *Invertebrate Paleontology.* Paleobiology of common invertebrate fossils. 3 gr. cr. ea. Qtr. TTh 9:30; W 1:00-4:00. Mr. Warren. Prereq.: Geol. 321-2-3, or equivalent, or a full course in biology, zoology, or botany.

*Absent on leave, autumn, winter, and spring quarters 1971-1972.

15-040-525. *Advanced animal life.* 4 gr. cr.

15-040-531,532,533. *environmental interpro tectonics.* 3 gr. cr. ea.

15-040-572. *Physiolog Mr. Durrell.*

15-040-573. *Physiogr Mr. Durrell.*

15-040-574. *Glacial C*

15-040-576. *Advance Summer of 1971. His 3 gr. cr. Aut. Qtr. M*

15-040-580. *Advance erosion, and equilibri 8:00. Mr. Lattman.*

15-040-581. *Basic Ph graphic theory and t and illustration. 2 gr*

15-040-641,642. *Op for recognition of tra Aut., Win. Qtrs. W*

15-040-648. *Thermo thermodynamics to f Prereq.: Permission*

15-040-661,662,663. *rocks: occurrence, g ranged. Mr. Larsen*

15-040-677. *Region America. 3 gr. cr. sion of instructor.*

15-040-678. *Region netism, and its app Mr. DeJong. Piere*

Primarily for Graa

14-040-701,702,703. *Dynamic relations sedimentary enviro*

14-040-711. *Palyne with emphasis on s Th 2:00-5:00. Mr.*

14-040-712. *Micro geologic occurrence 2:00-5:00. Mr. W*

15-040-525. *Advanced Historical Geology*. Evolution of the higher forms of plant and animal life. 4 gr. cr. Spr. Qtr. TTh 8:00; Tu 2:00-5:00; S 9:00-12:00. Mr. Caster.

15-040-531,532,533. *Stratigraphy and Sedimentation*. Physical and biological processes, environmental interpretation, facies analysis, stratigraphic analysis, basin analysis, and tectonics. 3 gr. cr. ea. Qtr. MW 11:00; M 1:00-4:00. Mr. Pryor.

15-040-572. *Physiology of Western United States*. 3 gr. cr. Aut. Qtr. MWF 1:00. Mr. Durrell.

15-040-573. *Physiography of Eastern United States*. 3 gr. cr. Win. Qtr. MWF 1:00. Mr. Durrell.

15-040-574. *Glacial Geology*. 3 gr. cr. Aut. Qtr. MW 10:00; F 2:00-5:00. Mr. Durrell.

15-040-576. *Advanced Geology Field Trip*. A two weeks' field excursion during the Summer of 1971. Historical and regional geology. Conferences and report in Aut. Qtr. 3 gr. cr. Aut. Qtr. Mr. Pryor. Prereq.: Permission of instructor.

15-040-580. *Advanced Geomorphology*. The physics and chemistry of processes of erosion, and equilibrium theories of landscape evolution. 3 gr. cr. Win. Qtr. MWF 8:00. Mr. Lattman. Prereq.: Geol. 405 or permission of instructor.

15-040-581. *Basic Photography for the Geological Sciences*. Systematic study of photographic theory and technique for geological research, with emphasis on documentation and illustration. 2 gr. cr. Win. Qtr. M 12:00. 3 laboratory hours. Mr. Bullard.

15-040-641,642. *Optical Mineralogy*. Crystal optics, use of the polarizing microscope for recognition of transparent substances in immersion media and thin sections. 4 gr. cr. Aut., Win. Qtrs. W 12:00-4:00; F 1:00-5:00. Mr. Sunderman.

15-040-648. *Thermodynamics in Geological Processes*. Application of principles of thermodynamics to geological problems. 3 gr. cr. Aut. Qtr. MWF 10:00. Mr. Kilinc. Prereq.: Permission of instructor.

15-040-661,662,663. *Igneous and Metamorphic Petrology*. Advanced study of crystalline rocks: occurrence, genesis, petrography. 5 gr. cr. ea. Qtr. MW 8:00. Lab. to be arranged. Mr. Larsen. Prereq.: Geol. 401-2-3 (or equivalent).

15-040-677. *Regional Tectonics (North America)*. Orogenic belts in North and South America. 3 gr. cr. Aut. Qtr. TTh 11:00; Th 2:00-5:00. Mr. DeJong. Prereq.: Permission of instructor.

15-040-678. *Regional Tectonics (World)*. Orogenic belts outside America; paleomagnetism, and its application to tectonics. 3 gr. cr. Win. Qtr. TTh 1:00; Th 2:00-5:00. Mr. DeJong. Prereq.: Permission of instructor.

Primarily for Graduate Students

14-040-701,702,703. *Advanced Sedimentation*. Principles of sedimentary processes. Dynamic relations between sedimentary processes and resulting sediments in major sedimentary environments. 4 gr. cr. ea. Qtr. TTh 8:00; T 1:00-4:00. Mr. Pryor.

14-040-711. *Palynology*. An introduction to the study of organic-walled microfossils, with emphasis on spores, pollen, and dinoflagellates. 3 gr. cr. Aut. Qtr. MW 10:00; Th 2:00-5:00. Mr. Warren. Prereq.: Geol. 521-2-3 (or equivalent).

14-040-712. *Micropaleontology I*. Conodonts and Ostracods. Morphology, biology, and geologic occurrence of conodonts and ostracods. 3 gr. cr. Win. Qtr. MW 10:00; Th 2:00-5:00. Mr. Warren. Prereq.: Geol. 521-2-3 (or equivalent).

- 14-040-713. *Micropaleontology II*. Foraminifera. Morphology, biology, and geologic occurrence of foraminifera. 3 gr. cr. Spr. Qtr. MW 10:00; Th 2:00-5:00. Mr. Warren. Prereq.: Geol. 521-2-3 (or equivalent).
- 14-040-732. *Geochemistry of Hydrothermal Ore Deposits*. Geochemical problems related to source, transport and deposition of ores in fluids; wall rock alteration and isotope geochemistry. 2 gr. cr. Win. Qtr. MWF 10:00. Mr. Kilinc. Prereq.: Permission of instructor.
- 14-040-775. *Field Studies in Stratigraphy and Sedimentation*. 10- to 14-day field trip during Spring vacation or in June. Report. 2 gr. cr. Mr. Pryor.
- 14-040-776. *Field Studies in Igneous and Metamorphic Petrology*. 10- to 14-day field trip during Spring vacation or in June. Report. 2 gr. cr. Mr. Larsen.
- 14-040-778. *Field Studies in Structural Geology*. 10- to 14-day field trip during Spring vacation or in June. Report. 2 gr. cr. Mr. DeJong.
- 14-040-779. *Field Studies in Volcanology*. 2-week field trip in September or December. Report. 2 gr. cr. Mr. Larsen.
- 14-040-780. *Methods of Geological Instruction*. Credits to be arranged. Offered ea. Qtr. Staff.
- 14-040-801,802,803. *Advanced Mineralogy I*. Advanced theory and techniques in crystallographic study of minerals; X-ray diffraction, optical goniometer, crystal structure analysis. 3 gr. cr. ea. Qtr. TTh 9:30-11:00; M 1:00-4:00. Mr. Koucky.
- 14-040-817,818,819. *Seminar in Petrology*. 3 gr. cr. ea. Qtr. MWF 11:00. Mr. Larsen.
- 14-040-821. *Seminar in Paleontologic Principles*. 3 gr. cr. Aut. Qtr. MWF 9:00. Messrs. Caster, Davis, Warren. Permission of instructors required.
- 14-040-822,823. *Seminar in Megascopic Paleontology*. Reading knowledge of German and French desirable. 3 gr. cr. Win., Spr. Qtrs. MWF 9:00. Mr. Caster. Permission of instructor required.
- 14-040-844. *Seminar in Geomorphology*. 3 gr. cr. Spr. Qtr. MWF 8:00. Mr. Lattman.
- 14-040-874. *Universal Stage Microscope Studies*. 4 gr. cr. Spr. Qtr. W 12:00-4:00; F 1:00-5:00. Mr. Sunderman.
- 14-040-881. *Research—Special Problems—Paleontology*. Credit to be arranged. Offered ea. Qtr. Messrs. Caster, Davis, Warren.
- 14-040-882. *Research—Mineralogy, Geochemistry*. Credit to be arranged. Offered ea. Qtr. Messrs. Bullard, Huff, Kilinc, Koucky, Sunderman.
- 14-040-883. *Research—Structural Geology*. Credit to be arranged. Offered ea. Qtr. Mr. DeJong.
- 14-040-884. *Research—Petrology*. Credit to be arranged. Offered ea. Qtr. Messrs. Kilinc, Larsen.
- 14-040-885. *Research—Economic Geology*. Credit to be arranged. Offered ea. Qtr. Mr. Jenks.
- 14-040-886. *Research—Geomorphology*. Credit to be arranged. Offered ea. Qtr. Messrs. Durrell, Lattman.
- 14-040-887. *Research—Sedimentary Petrology*. Credit to be arranged. Offered ea. Qtr. Mr. Pryor.

14-040-888. *Research—*
ea. Qtr. Messrs. Caste

14-040-889. *Research—*

14-040-890. *Research—*
ea. Qtr. Mr. DeJong.

14-040-891. *Master's*
ea. Qtr. Mr. Caster.

14-040-892. *Master's*
ranged. Offered ea. Q

14-040-893. *Master's*
Offered ea. Qtr. Mess

14-040-894. *Master's*
Qtr. Messrs. Kilinc, L

14-040-895. *Master's*
Offered ea. Qtr. Mr.

14-040-896. *Master's*
ea. Qtr. Messrs. Dur

14-040-897. *Master's*
Offered ea. Qtr. Mr.

14-040-898. *Master's*
ranged. Offered ea.

14-040-971. *Doctora*
Offered ea. Qtr. Per

14-040-972. *Doctora*
arranged. Offered ea

14-040-973. *Doctora*
ranged. Offered ea.

14-040-974. *Doctora*
ea. Qtr. Permission

14-040-975. *Doctora*
Offered ea. Qtr. Pe

14-040-976. *Doctora*
Offered ea. Qtr. Pe

14-040-977. *Doctora*
ranged. Offered ea

14-040-978. *Doctora*
be arranged. Offer

Courses Omitted in
Alternate Advance
eralogy; 672, Elen
675-6, Geology of
Deposits; 811-2-3,
Seminar in Econor

14-040-888. *Research—Stratigraphy—Sedimentology*. Credit to be arranged. Offered ea. Qtr. Messrs. Caster, Pryor.

14-040-889. *Research—Clay Mineralogy*. Credit to be arranged. Offered ea. Qtr.

14-040-890. *Research—Geophysics (Paleomagnetism)*. Credit to be arranged. Offered ea. Qtr. Mr. DeJong.

14-040-891. *Master's Thesis Research—Paleontology*. Credit to be arranged. Offered ea. Qtr. Mr. Caster.

14-040-892. *Master's Thesis Research—Mineralogy—Geochemistry*. Credit to be arranged. Offered ea. Qtr. Messrs. Bullard, Kilinc, Koucky.

14-040-893. *Master's Thesis Research—Structural Geology*. Credit to be arranged. Offered ea. Qtr. Messrs. DeJong, Jenks.

14-040-894. *Master's Thesis Research—Petrology*. Credit to be arranged. Offered ea. Qtr. Messrs. Kilinc, Larsen.

14-040-895. *Master's Thesis Research—Economic Geology*. Credit to be arranged. Offered ea. Qtr. Mr. Jenks.

14-040-896. *Master's Thesis Research—Geomorphology*. Credit to be arranged. Offered ea. Qtr. Messrs. Durrell, Lattman.

14-040-897. *Master's Thesis Research—Sedimentary Petrology*. Credit to be arranged. Offered ea. Qtr. Mr. Pryor.

14-040-898. *Master's Thesis Research—Stratigraphy—Sedimentology*. Credit to be arranged. Offered ea. Qtr. Messrs. Caster, Pryor.

14-040-971. *Doctoral Dissertation Research—Paleontology*. Credits to be arranged. Offered ea. Qtr. Permission of adviser required. Mr. Caster.

14-040-972. *Doctoral Dissertation Research—Mineralogy—Geochemistry*. Credits to be arranged. Offered ea. Qtr. Permission of adviser required. Mr. Kilinc.

14-040-973. *Doctoral Dissertation Research—Structural Geology*. Credits to be arranged. Offered ea. Qtr. Permission of adviser required. Messrs. DeJong, Jenks.

14-040-974. *Doctoral Dissertation Research—Petrology*. Credits to be arranged. Offered ea. Qtr. Permission of adviser required. Messrs. Kilinc, Larsen.

14-040-975. *Doctoral Dissertation Research—Economic Geology*. Credits to be arranged. Offered ea. Qtr. Permission of adviser required. Mr. Jenks.

14-040-976. *Doctoral Dissertation Research—Geomorphology*. Credits to be arranged. Offered ea. Qtr. Permission of adviser required. Mr. Lattman.

14-040-977. *Doctoral Dissertation Research—Sedimentary Petrology*. Credit to be arranged. Offered ea. Qtr. Permission of adviser required. Mr. Pryor.

14-040-978. *Doctoral Dissertation Research—Stratigraphy—Sedimentology*. Credits to be arranged. Offered ea. Qtr. Messrs. Caster, Pryor.

Courses Omitted in 1971-1972: 561-2, Interpretation of Aerial Photographs; 575-577, Alternate Advanced Geology Field Trips; 578, World Physiography; 631, Clay Mineralogy; 672, Elements of Structural Analysis; 673, Advanced Structural Geology; 675-6, Geology of Ore Deposits I and II; 777, Field Studies in Mining Geology—Ore Deposits; 811-2-3, Geochemistry; 814-5-6, Advanced Sedimentary Petrology; 873, Seminar in Economic Geology.

Classes end
Examinations
Winter Quarter ends

Tues., Mar. 7
Thurs. 9, Mar. 9-14
Tues., Mar. 14

*Additional calendar items relating to a specific college schedule will be found in Part 2 of the *Bulletin* of that college.
Calendars of the Evening College and the Summer School will be found in those *Bulletins*.
†See Part 1, page xiv for specific registration regulations.

SUMMER SCHOOL TERM
First Mon., June 14-15
Second Tues., July 11-12
Third Thurs., Aug. 3-Fri., Aug. 4
Summer Quarter-Term (see Summer School Bulletin)
Summer Commencement Sat., Aug. 26

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Announcement

of



McMicken College of Arts and Sciences

1971-1972

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Geology

Head: Professor Lattman (5C); Professors Caster (4A), Jenks (32), Larsen (20), Pryor (1); Associate Professors Durrell (33), Huff (25), Koucky (35), Sunderman (31); Assistant Professors Bullard (B-10), DeJong (36), Kilinc (20), Warren (304 BSc); Curator and Assistant Professor Davis (2). (Offices are in Old Tech Building except as noted.)

Entering Freshmen intending to major in Geology may apply for the W. H. Bucher Scholarship (see page 20).

Geol. 101-2-3 is preliminary to all advanced courses in geology. Students who have completed 104-5-6 and wish to major in geology will be asked to take 101-2-3.

To qualify for the B.S. degree in geology a student shall include in his program Geol. 037-8-9, 271 (or 272 or 273), 301-2-3, 321-2, 331, 401-2-3, 405-6, 437-8-9, 525; Chem. 101-2-3, 111-2-3, 9 to 14 credits of Calculus or other approved Mathematics courses and 9 to 15 credits of physics or biology. In addition to the basic core of geology courses listed above, at least 18 credits in advanced courses in geology must be elected and should include 521-2-3 or 531-2-3 and 677 where feasible. The language requirement must be fulfilled by German, French, or Russian prior to the senior year.

The B.S. major may lead to graduate work in geology, usually considered essential for a professional career. A properly planned program may lead to the M.S. degree one year after obtaining the B.S. Typical programs may be obtained from the adviser.

All students are required to take a six to eight weeks' summer field course or its equivalent. Alternative acceptable field training may be obtained by summer work at a marine biological station or with one of the geological surveys, or by summer field employment by a mining or oil company, with the approval of the staff.

Each autumn some students majoring in geology will be invited to attend a four-day field trip and should anticipate living expenses of about \$25.

15-040-101,102,103. Introduction to Geology. A survey of physical and historical geology. Sec. I: Lect. MWF 1:00, Lab. MW 2:00-5:00; Sec. II: Lect. MWF 1:00, Lab. TTh 2:00-5:00; Sec. III: Lect. TTh 9:30-11:00, Lab. MW 2:00-5:00; Sec. IV: Lect. TTh 9:30-11:00, Lab. TTh 2:00-5:00. 5 ug. cr. ea. Qtr. Staff.

101. Weathering; Mass wasting; Streams; Ground Water; Glaciers; Oceanography.

102. Volcanoes; Minerals; Rocks; Geologic time; Metamorphism; Sedimentation; Seismology; Mountain building; Ore deposits; Sea-floor spreading.

103. Stratigraphy; Paleontology; History of North America.

15-040-104,105,106. Geology of Man's Environment. An elementary course for those not expecting to major in earth sciences. Fulfills B.A. science requirement when taken with an elementary course in another science. 3 ug. cr. ea. Qtr. Lect. MWF 9:00. Staff.

15-040-181,182,183. Introduction to Geology. (Honors.) Departmental approval required. 5 ug. cr. ea. Qtr. Lect. TTh 9:30-11:00. Lab. TTh 2:00-5:00. Staff.

15-040-194,195,196. McMicken Scholars on Independent Studies. Consent of instructor required. Credits and hours to be arranged. Staff.

- 15-040-199. *Geology Honors Colloquium*. The development of geological thought and readings in classical literature, discussions leading to the frontiers of modern geology. Limited to McMicken scholars. 3 ug. cr. Spr. Qtr. M 2:00-5:00. Staff.
- 15-040-271. *Geologic Demonstration Trip*. A two-weeks' field trip to Michigan, Wisconsin, Illinois. Iron and copper districts, Lake Superior. September 1971. One-hour conference weekly. 3 ug. cr. Aut. Qtr. M 12:00. Mr. Koucky.
- 15-040-301,302,303. *Mineralogy*. Crystallography, crystal chemistry, atomic structures, geochemistry, and systematics of the common minerals. 3 ug. cr. ea. Qtr. TTh 11:00; Th 2:00-5:00. Mr. Koucky. Prereq.: College chemistry or permission of instructor.
- 15-040-321,322. *Historical Geology*. The physical and biological history of the earth with particular emphasis on North America. Field trips. 4 ug. cr. Aut., Win. Qtrs. TTh 8:00; Tu 2:00-5:00; S 9:00-12:00. Mr. Caster. Prereq.: Geol. 101-2-3.
- 15-040-331. *Elementary Structural Geology*. Description and interpretation of tectonic structures. Geometrical and geological field work techniques. 3 ug. cr. Spr. Qtr. MW 10:00; F 2:00-5:00. Mr. DeJong.
- 15-040-401,402,403. *Elementary Petrology*. Aut. Qtr.: The polarizing microscope; Win., Spr. Qtrs.: The rock cycle, hand lens petrography, thin section studies of rocks. 3 ug. cr. ea. Qtr. Tu 11:00; TTh 2:00-5:00. Staff. Prereq.: Geol. 303
- 15-040-405. *Principles of Geomorphology*. Fundamental concepts of land forms in terms of lithology, structure and geologic history. 3 ug. cr. Win. Qtr. MW 10:00, F 2:00-5:00. Mr. Durrell. Prereq.: Geol. 331 or permission of instructor.
- 15-040-406. *Major Problems in Geology*. A study of current major problems relating to the interpretation of the origin of the earth's crust. 3 ug. cr. Aut. Qtr. MW 10:00, F 2:00-5:00. Staff.
- 15-040-037,038,039. *Geology Seminar*. Required of all juniors and seniors majoring in geology. No credit. W 4:00. Staff.
- 15-040-487,488,489. *Individual Work in Geology*. Credit depends on amount of work done. May be entered any Quarter. Staff.
- 15-040-521,522,523. *Invertebrate Paleontology*. Paleobiology of common invertebrate fossils. 3 ug. cr. ea. Qtr. TTh 9:30; W 1:00-4:00. Mr. Warren. Prereq.: Geol. 322 or equivalent, or a full course in biology, zoology, or botany.
- 15-040-525. *Advanced Historical Geology*. Evolution of the higher forms of plant and animal life. 4 ug. cr. Spr. Qtr. TTh 8:00; Tu 2:00-5:00; S 9:00-12:00. Mr. Caster.
- 15-040-531,532,533. *Stratigraphy and Sedimentation*. Physical and biological processes, environmental interpretation, facies analysis, stratigraphic analysis, basin analysis, and tectonics. 3 ug. cr. ea. Qtr. MW 11:00; M 1:00-4:00. Mr. Pryor.
- 15-040-572. *Physiography of Western United States*. Regional geomorphology of western U.S.A., Alaska, and Hawaii. 3 ug. cr. Aut. Qtr. MWF 1:00. Mr. Durrell.
- 15-040-573. *Physiography of Eastern United States*. Regional geomorphology of eastern U.S.A. 3 ug. cr. Win. Qtr. MWF 1:00. Mr. Durrell.
- 15-040-574. *Glacial Geology*. Glaciers and glaciation, their relation to climatic changes with emphasis on the Pleistocene history of Cincinnati region. 3 ug. cr. Aut. Qtr. MW 10:00, F 2:00-5:00. Prereq.: Geol. 401, 405 or permission of instructor. Mr. Durrell.
- 15-040-576. *Advanced Geology Field Trip*. A two weeks' field excursion during September 1971. Conferences and report in Autumn Quarter. 3 ug. cr. Aut. Qtr. Prereq.: Permission of instructor. Mr. Pryor.

15-040-580. *Adv*
erosion, and equ
8:00. Mr. Lattin

15-040-581. *Bas*
graphic theory a
and illustration.

15-040-641,642.
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15-040-648. *The*
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Prereq.: Permissi

15-040-661,662,6
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15-040-677. *Reg*
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15-040-678. *Reg*
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Courses Omitted
Trip; 561-2, Inter
Field Trips; 578,
tural Analysis; 6
I and II.

Professors Stern
Visiting Professor
(230); Adjunct Ass
Cobbs (32), Obrat
except as noted.)

German 101-2-
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All advanc
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permission. To en
must obtain permi

Related
15-001-221,222
15-001-361,362
15-001-371
15-001-372
The De

15-040-530. *Advanced Geomorphology*. The physics and chemistry of processes of erosion, and equilibrium theories of landscape evolution. 3 ug. cr. Win. Qtr. MWF 8:00. Mr. Lattman. Prereq.: Geol. 405 or permission of instructor.

15-040-581. *Basic Photography for the Geological Sciences*. Systematic study of photographic theory and technique for geologic research, with emphasis on documentation and illustration. 2 ug. cr. Win. Qtr. M 12:00-1:00. 3 laboratory hours. Mr. Bullard.

15-040-641,642. *Optical Mineralogy*. Crystal optics, use of the polarizing microscope for recognition of transparent substances in immersion media and thin sections. 4 ug. cr. ea. Qtr. Aut., Win. Qtrs. W 12:00-4:00; F 1:00-5:00. Mr. Sunderman.

15-040-648. *Thermodynamics in Geological Processes*. Application of principles of thermodynamics to geological problems. 3 ug. cr. Aut. Qtr. MWF 10:00. Mr. Kilinc. Prereq.: Permission of instructor.

15-040-661,662,663. *Igneous and Metamorphic Petrology*. Advanced study of crystalline rocks: occurrence, genesis, petrography. 5 ug. cr. ea. Qtr. MW 8:00, MW 2:00-5:00. Mr. Larsen. Prereq.: Geol. 401-2-3, or equivalent.

15-040-677. *Regional Tectonics (North America)*. Orogenic belts in North and South America. 3 ug. cr. Aut. Qtr. TTh 11:00; Th 2:00-5:00. Mr. DeJong. Prereq.: Permission of instructor.

15-040-678. *Regional Tectonics (World)*. Orogenic belts outside America; paleomagnetism, and its application to tectonics. 3 ug. cr. Win. Qtr. TTh 1:00; Th 2:00-5:00. Mr. DeJong. Prereq.: Permission of instructor.

Courses Omitted in 1971-1972: 272-3, Alternate Routes Geologic Demonstration Field Trip; 561-2, Interpretation of Aerial Photographs; 575-6-7, Alternate Advanced Geology Field Trips; 578, World Physiography; 631, Clay Mineralogy; 672, Elements of Structural Analysis; 673, Advanced Structural Geology; 675-6, Geology of Ore Deposits I and II.

Germanic Languages and Literatures

Professors Stern (Head, 228), Friedrichsmeyer (367), Merkel (229), Slessarev (231); Visiting Professor Oskar Holl (229); Associate Professors Glenn (301 BSc), Richert (230); Adjunct Associate Professor Schlawe; Assistant Professor Harris (367); Instructors Cobbs (32), Obrath (32), Remys (232), Voss (232). (All offices are in McMicken Hall except as noted.)

German 101-2-3, 104-5-6, 201-2-3, 204-5-6, and 207-8-9 will not count toward a major in German. German 231-2-3, 401-2-3 or equivalents, 437-8-9, shall be offered as a part of the requirement toward a major in German. In addition, German majors are expected to select German 171-2-3 as one of their elective courses in preparation for Part I (German Culture) of their Comprehensive Examinations.

All advanced courses in German, except Senior Readings (437-8-9), may be entered at the beginning of the Winter or Spring Quarter, with the instructor's permission. To enter 100- and 200-level courses after the Autumn Quarter, students must obtain permission of the Department Head.

Related courses in the Department of English recommended for majors:

15-001-221,222,223. *World Literature*. For description, see page 54.

15-001-361,362,364. *Comparative Romanticism*.

15-001-371. *Modern Fiction I: Late Nineteenth Century*.

15-001-372. *Modern Fiction II: Early Twentieth Century*.

The Department offers a Work-Study Program in Germany. For details see page 27.