

teaching, utilizing pre-and post-testing procedures with the monitoring of student progress.

3860 Advanced Internship in Special Education I. Offers students the opportunity to further explore areas of interest within the field of Special Education. Interns experiment with special emphasis on the chosen exceptionalities for supplemental licensure. Disciplinary focus and field site placements are individualized.

3870 Advanced Internship in Special Education II.

3880 Advanced Internship in Special Education III. Advanced Internships II and III offer students the opportunity to further explore areas of interest within the field of Special Education. Interns experiment with special emphasis on the chosen exceptionalities for supplemental licensure. Disciplinary focus and field site placements are individualized.

4300 Educational Theory, Policy and Practice (4 sem. hours). The study of educational theory and the philosophies which underlie the development of curricula, instructional programs, and educational policy. Special attention is given to the relationship between educational theory, policy development, and modern educational practice.

4500 Clinical Practice (16 or 12 sem. hours). Intensive field experience involving student teaching all day for a minimum of 12 weeks at an elementary, middle, or high school in the Metropolitan Tri-County area.

4750 Special Topics (1 - 4 sem. hours). In-depth study of specific aspects of education, including Educational Technology.

Geology

Associate Professors:

Delbert E. Gann, Ph.D.

James B. Harris, Ph.D., Chair

Assistant Professor:

Stanley J. Galicki, Ph.D.

Requirements for major: Students may complete a major in geology by following one of three tracks and completing the required courses with a grade of C or better:

A. Classical geology track: The Physical Earth, Plate Tectonics and Earth History, Physical and Chemical Mineralogy, Sedimentary Geology, Paleontology, Igneous and Metamorphic Petrology, Structural Geology, Solid Earth Geophysics, and one additional geology course (2000-level or above) approved by the department chair. Geology majors following the classical geology track must also take Analytic Geometry and Calculus I, General Chemistry I and II, and General Physics I and II.

B. Environmental geology track: The Physical Earth, Environmental Issues of the 21st Century, Plate Tectonics and Earth History, Physical and Chemical Mineralogy, Sedimentary Geology, Hydrology and Chemistry of Natural Waters, Structural Geology, Environmental and

Engineering Geophysics, and one additional geology course (2000-level or above) approved by the department chair. Geology majors following the environmental track must also complete General Chemistry I and II, two courses in biology, and either (a) Analytical Geometry and Calculus I for the bachelor of science degree or (b) Survey of Calculus and Elementary Statistics for the bachelor of arts degree. General Physics I and II are highly recommended.

C. Geophysics track: The Physical Earth, Plate Tectonics and Earth History, Sedimentary Geology, Structural Geology, Environmental and Engineering Geophysics, Solid Earth Geophysics. Geology majors following the geophysics track must also take General Physics I and II, three additional physics courses approved by the department chair, Analytic Geometry and Calculus I and II, and one additional math course (2000 level or above).

Field Requirements: Field Methods and Field Geology are required for geology majors following any of the three tracks. An introductory field experience (approved by the department chair) may be substituted for Field Methods. Field Geology, an advanced field experience, may be taken at Millsaps or through another college or university. Geology majors are required to participate in at least one field trip per year.

Requirements for minor: Students may elect to minor in geology with The Physical Earth, Plate Tectonics and Earth History, Sedimentary Geology, Structural Geology, and one additional geology course (2000-level or above) approved by the department chair.

Courses

1000 The Physical Earth (4 sem. hours). Study of the earth, including earth material properties, surface erosional and depositional processes, and earth interior processes. Includes lab and one field trip.

1100 Environmental Issues of the 21st Century (4 sem. hours). Examination of the facts underlying four major areas of environmental concern: 1) atmospheric pollution and deterioration, 2) water pollution and misuse, 3) population growth and resource availability, and 4) energy resources: availability, alternatives, and possible impacts.

2000 Plate Tectonics and Earth History (4 sem. hours). Study of successive events leading to the present configuration of the continental masses, the evolution and development of life, and the kinds and distribution of rocks and minerals, all viewed using the framework of the Theory of Plate Tectonics. Prerequisite: Geology 1000.

2100 Applied Techniques in Mineralogy (4 sem. hours). Techniques of mineral identification using the optical properties of light and X-rays. An introduction to crystalline order and the crystal systems using crystals, block models, stereograms, the petrographic microscope, X-ray diffractometer, and the scanning electron microscope. Prerequisite: Geology 1000. Offered on demand.

2200 Physical and Chemical Mineralogy (4 sem. hours). Physical properties, origin, occurrence, geochemistry, atomic structures, and uses of minerals. Lab emphasizes the physical identification of minerals in hand samples. Prerequisite: Geology 1000.

2300 Sedimentary Geology (4 sem. hours). Rock sequences, lithologic and paleontologic facies of various parts of the United States, and basic sedimentological principles. Two field trips are required. Prerequisites: Geology 1000 and Geology 2000.

3000 Paleontology (4 sem. hours). Classification and morphology of fossil invertebrates with

reference to evolutionary history and environment and an introduction to vertebrate paleontology with an emphasis on the Mesozoic Era, specifically the Dinosauria. Field trips to collect representative fossils are required. Prerequisites: Geology 1000 and Geology 2000 or consent of instructor.

3100 Principles of Ore Deposition (4 sem. hours). The chief economic rocks and minerals of the United States and other countries, with consideration of their stratigraphy, genesis, value, and use. Prerequisites: Geology 1000, Geology 2000, and Geology 2200. Offered on demand.

3200 Petroleum Geology (4 sem. hours). The applications of geology to the petroleum industry; theories on origin, problems in migration, oil traps, subsurface methods, and occurrence of oil and gas. Prerequisite: Geology 1000 and Geology 2000. Offered on demand.

3300 Hydrology and Chemistry of Natural Waters (4 sem. hours). A comprehensive study of the occurrence, distribution, and geochemical processes of natural waters. Topics include: hydrologic cycle, Darcy's Law, groundwater flow in confined and unconfined aquifers, stream flow, the effects of common forms of pollution on the natural system, current environmental regulations, and remediation technologies. Prerequisite: Geology 1000.

3400–3403 Special Problems in Geology (1, 2, 3, or 4 sem. hours). Open to geology majors and some non-geology majors who have an interest in pursuing individual field or laboratory problems. Prerequisite: consent of instructor.

3500–3503 Directed Study in Geology (1, 2, 3, or 4 sem. hours). Open to geology majors and some non-geology majors who desire pursuing a directed course of study in geology. Prerequisite: consent of instructor.

4000 Igneous and Metamorphic Petrology (4 sem. hours). Introduction to the genesis, global distribution, associations, compositions, and classifications of igneous and metamorphic rocks. Laboratory emphasis is on macroscopic and microscopic identification of igneous and metamorphic rocks. Field trips are possible. Prerequisite: Geology 2200 or consent of instructor.

4100 Geochemistry (4 sem. hours). An introduction to the chemical principles of geological systems: carbonate equilibria, clay colloid chemistry, Eh-Ph diagrams, chemical weathering, organic materials in sediments, and phase diagrams. Prerequisite: Geology 1000, Geology 2000, and General Chemistry I and II. Offered on demand.

4200 Structural Geology (4 sem. hours). Origin and classification of the structural features of the rocks comprising the earth's crust. Lab emphasizes various techniques of structural analysis. Prerequisites: Geology 1000 and Geology 2000.

4300 Environmental and Engineering Geophysics (4 sem. hours). Near-surface geophysical methods (seismic refraction, seismic reflection, electrical/electromagnetic, and borehole) are introduced and applied to environmental and engineering problems. Fieldwork required. Prerequisites: Geology 1000 and Geology 2000.

4350 Solid Earth Geophysics (4 sem. hours). An introduction to the fundamentals of geophysical exploration (controlled-source seismology, earthquake seismology, gravity, magnetics, and heat flow). Specific observations illustrate how each technique constrains certain aspects of the plate tectonic framework that is funda-

mental to the study of the earth. Prerequisites: Geology 1000 and Geology 2000.

4402 Field Methods (2 sem. hours). A course designed to introduce field geology and familiarize students with basic field-mapping procedures. Prerequisites: Geology 1000 and Geology 2000.

4506 Field Geology (6 sem. hours). Practical training in the standard methods of geologic fieldwork and an introduction to regional geology. Prerequisites: to be determined by the college or university offering the course, but should include Geology 1000, Geology 2000, Geology 2300, Geology 4200, and Geology 4402.

Mathematics

Professor:

Robert A. Shive Jr., Ph.D.

Associate Professors:

Connie M. Campbell, Ph.D.

Mark J. Lynch, Ph.D.

Assistant Professor:

Gayla F. Dance, M.S., M.A., Chair

John Osoniach, Ph.D.

Instructor:

Tracy L. Sullivan, M.S.

| 137

Requirements for major: Students may complete a major in mathematics with nine mathematics courses that include Analytic Geometry and Calculus II and III, Introduction to Advanced Mathematics, Senior Seminar, Abstract Algebra, Advanced Calculus, and at least 12 additional semester hours of mathematics at or above the 3000 level. A C- grade or higher is required for each of these courses. Majors must also complete Computer Science I and a physics course with a lab or an intermediate level course in French or German. All requirements for the major not taken at Millsaps must be approved in advance by the department chair.

Requirements for minor: Students may elect a minor in mathematics by completing five mathematics courses that include, Analytic Geometry and Calculus II, Analytic Geometry and Calculus III, Introduction to Advanced Mathematics, and at least eight additional semester hours of mathematics at or above the 3000 level. A C- grade or higher is required in each of these courses. In addition, Computer Science I is required.

Courses

1100 College Algebra (4 sem. hours). Topics include solving polynomial equations and inequalities, functions and their graphs, systems of equations, properties of logarithmic and exponential functions, elementary analytic geometry, and applications of these topics. This course can be used as a single course preparation for Math 1210 or as the first in a two-semester preparation for Math 1220. (The second course in this sequence is Trigonometry.) Credit is not allowed for both Mathematics 1100 and Mathematics 1130.

1110 College Trigonometry (4 sem. hours). The basic analytic and geometric properties of