Graduate Programs

Degree Offered

The University of Arkansas-Monticello offers two master's degree programs: Master of Science (M.S.): Forest Resources; and a Master of Education (M.Ed.) Degree Major: Elementary Education; Major: Secondary Education (with emphasis in English; General Science; Mathematics; Physical Education; Social Studies).

Admission to the University

Students who hold baccalaureate degrees from accredited institutions and who have achieved minimum grade point averages of at least 2.50 may be admitted to the University with graduate status and enroll in graduate courses. Students must file a completed Application for Admission and must supply official transcripts of all undergraduate and graduate course work to the Office of Admissions.

Students who do not meet the minimum grade point average may petition to the Graduate Council for probationary admission. Probationary admission will allow a student to enroll in up to 12 hours of course work.

A graduate student who has not been enrolled for a period of two calendar years will be classified as inactive. To resume graduate study, the student must reapply for admission.

Grades and Academic Status

Graduate students may earn grades of A, B, C, D, or F. These grades indicate the following:

A	Excellent graduate work
B	Good graduate work
C	Marginal graduate work
D	Poor graduate work
F	Failing graduate work

A student whose grade record includes three graduate courses with grades of "C" or lower may not maintain graduate status unless the Graduate Council, upon petition from a graduate faculty member, has authorized a plan of study for the student. Normally, courses in which "D" or "F" grades are earned must be repeated.

Course Loads and Course Work

Normally, the maximum course load must not exceed 12 graduate hours during the spring or fall semesters. Normally, the maximum load for each summer term is 6 hours. Students who hold a graduate assistantship must enroll for a minimum of 6 hours during the fall and spring semesters. Graduate assistants in the School of Forest Resources are also required to enroll for at least one hour during each summer term.

All course work on the degree plan must be recent. Courses older that six years must be appealed to the Graduate Council. Normally, courses older than six years will not apply to a graduate program of study.

Independent Study and Research

It is sometimes desirable, and in the best interest of the student's academic growth, that he/she be allowed to engage in independent study or research. Independent study or research courses will carry a course number of 5XXV in each discipline.

Independent study and research courses will require extensive independent study and research, formal written reports, and regular conferences with the instructor. A detailed description of the proposal and its requirements will be submitted for approval to the instructor, Dean, and Vice Chancellor for Academic Affairs. Students may complete only one independent study/research project each semester. Independent study/research proposals should not duplicate existing courses in the academic catalog.

Only students who have been admitted to a degree program will be eligible for independent study. Normally, a maximum of nine hours of independent study/research courses may apply to a degree program.

Undergraduate Students Enrolling in Graduate Courses

Qualified undergraduate students may be permitted to enroll in graduate courses for either undergraduate or graduate credit within the following guidelines. Only undergraduate students within 30 hours of graduation may petition to enroll in graduate courses through the Vice Chancellor for Academic Affairs. A minimum cumulative grade point average of 3.00, approval by the course instructor, faculty advisor, and consent of the Dean or Chair of the offering unit must be presented as part of the petition. Normally undergraduate students will not receive graduate credits, but when circumstances warrant, the Graduate Council may authorize awarding graduate credit. However, students enrolling in graduate courses for graduate credit (not undergraduate credit) may not apply such credits to undergraduate degree requirements.

Appeals of Academic Policy

Appeal rights are open to all students in graduate programs. Appeals may be initiated with an advisor and may be pursued with the Dean, Vice Chancellor for Academic Affairs, and the Graduate Council.

Master of Education Degree

Advising

At the time a graduate Education student is admitted to the University, a graduate advisor will be assigned by the Dean of the School of Education. This assignment will be based on the student's background and interests.

Degree Plan and Admission

Students seeking the M.Ed. Degree must obtain full admission to the University and complete a degree plan in the School of Education. During their first semester of enrollment, degree-seeking students will select two graduate faculty members to serve on an Advisory Committee. The committee, the advisor, and the student will work together in developing a degree plan.

Students Without Teacher Licensure

Students who possess a bachelor's degree without teacher licensure may earn degree candidacy through a special program. This program will allow a student to earn a master's degree and licensure to teach simultaneously. Students in this program will complete both graduate and undergraduate courses.

Transfer Credit

Acceptance of transfer credit for the M.Ed. Degree is based on the nature, quality, and recency of the credit. Special consideration will be given to transfer students from other public institutions in the state, especially those in the University of Arkansas system. As many as 24 hours, not to include specifically required courses in areas of specialization, will be accepted from the University of Arkansas at Pine Bluff. Ordinarily, not more than 9 hours will be accepted from other institutions. Questions regarding transfer of credit should be referred to the Dean of the School of Education.

Comprehensive Examination

Students must satisfactorily complete a written comprehensive examination in the concentration and the core and maintain a cumulative grade point average of 3.00 as conditions for graduation. The examination for the M.Ed. Degree will be graded for content and composition. Students who fail the examination will be informed in writing of deficiencies and notified of the time when a second examination will be administered. Failing students may be required to complete additional courses and must petition for more than two attempts.

Dates for the written comprehensive examination for the M.Ed. Degree will be announced by the School of Education.

Degree Requirements

ELEMENTARY EDUCATION
The Master of Education Degree

Core Requirements ..... 12 hours
EDFD 5003 History and Philosophy of Education
EDFD 5023 Educational Research Methodology
EDFD 5043 Instructional Technology
EDFD 5063 Psychological Foundations of Teaching and Learning

Concentration Requirements ..... 12 hours
To be developed by the Advisory Committee

Electives ..... 12 hours

SECONDARY EDUCATION
The Master of Education Degree

Core Requirements ..... 12 hours

EDFD 5003	History and Philosophy of Education
EDFD 5023	Educational Research Methodology
EDFD 5043	Instructional Technology
EDFD 5063	Psychological Foundations of Teaching and Learning

Concentration Requirements ..... 12 hours
A minimum of 12 concentration hours (selected from English; General Science; History; Math; Political Science) as developed by the Advisory Committee.

Other Requirements..... 12 hours
A minimum of 12 additional graduate credits must be completed and must be approved by the graduate advisor.

Master of Science Degree in Forest Resources

Admission

As a general rule, applicants should have a baccalaureate degree in forestry, the wildlife sciences, or another natural resource management discipline. However, prospective students from other fields are also encouraged to apply. All applicants will have transcripts analyzed by School of Forest Resources faculty to assess the need for cognate work. Applicants whose record shows an insufficient background in forest resources will be required to enroll in undergraduate cognate course work and the prerequisites to those courses. This course work will be scheduled in consultation with the student's advisory committee.

Applicants for the M.S. Degree in Forest Resources must obtain full admission to the University. They must have a grade point average (GPA) of 2.70 or better (on a 4.00 scale) on all course work, or a GPA of 3.00 or better on the last 60 hours of course work taken prior to receipt of a baccalaureate degree from an accredited institution of higher education. Applicants must have completed the Graduate Record Examination general test and been accepted by the School of Forest Resources Dean and a major professor. Any other consideration for regular admission must be made by individual petition to the School of Forest Resources Dean and, where pertinent, a recommendation from the appropriate faculty, and will be considered on its own merits, case by case.

Students may be conditionally admitted upon approval of the School of Forest Resources faculty and Dean. Students who are admitted conditionally must earn a GPA of 3.0 or better in their initial 9 hours of graduate course work to continue graduate studies in the program. Students are not eligible for a graduate assistantship during conditional status.

Student Advising

Upon enrolling at UAM, each graduate student will be required to select a major professor with the concurrence of the School of Forest Resources Dean. By mid-term of the first semester of enrollment, the student and the major professor must select a three- to five-member Advisory Committee. The Committee must consist of the major professor and two other graduate faculty members from the School of Forest Resources and/or Arkansas Forest Resources Center. Additionally, up to two additional Committee members may be selected from the School of Forest Resources, other members of the Graduate Faculty, other institutions within the UA

System, or from other qualified individuals from cooperating institutions, agencies, or industries.

Degree Plan and Thesis Proposal

Each student will be required to develop a degree plan and thesis proposal with the advice and approval of his or her Advisory Committee. The degree plan will include an individualized sequence of courses in addition to a required forest resources core curriculum. A total of 30 hours containing no more than 6 hours of Research and Thesis will be required. An appropriate level of Research and Thesis hours will be determined by the Advisory Committee based on the scope of individual thesis projects. The degree plan must be submitted for approval to the School of Forest Resources Dean by the end of the first semester of enrollment. The student, advisor, Advisory Committee members, Graduate Program Coordinator, and the Dean of the School of Forest Resources must all sign the degree plan. The document will then be forwarded to the Office of Graduate Studies. The thesis proposal consists of a justification, literature review, and plan of action for the thesis project. The thesis proposal must be submitted for approval to the School of Forest Resources Dean by the end of the second semester of enrollment. The student, advisor, Advisory Committee members, Graduate Program Coordinator, and the Dean of the School of Forest Resources must all sign the thesis proposal.

Academic Status

Graduate students may earn grades of A, B, C, D, or F, except for Research and Thesis which is graded Pass/Fail. Undergraduate cognate courses may be taken for a grade or as Pass/Fail. A cumulative GPA of 3.0 out of 4.0 must be maintained to complete degree requirements and to retain a graduate assistantship. No more than two courses in which a grade of "C" was obtained may be applied toward degree requirements. A student may not repeat a course in which a grade of "B" or higher was obtained.

Transfer Credit

A maximum of 6 hours of graduate-level course work completed prior to development of a degree plan may be transferred to UAM from another university, provided the course subjects are acceptable to the School of Forest Resources faculty as a part of the program of study. An exception is that up to 15 hours of course work completed at other Universities in the UA System (with which the Arkansas Forest Resources Center is associated) may be applied toward the graduate degree if so indicated on an approved degree plan. Courses taken more than six years prior to admission to UAM will not be accepted for transfer credit. Additionally, no courses with grades below a "B" will be accepted for transfer credit.

Graduation Requirements

For graduation, each student seeking the M.S. Degree in Forest Resources must successfully complete 24–27 semester hours of graduate course work and 3–6 hours of Research and Thesis, as outlined in the degree plan, with a cumulative grade-point average of 3.0 or better. In addition, each student must complete an approved thesis and pass an oral comprehensive examination.

Thesis and Comprehensive Examination

A thesis topic must be approved by the student's Advisory Committee. Students will be

required to define an appropriate problem for investigation; review relevant literature; develop a study plan; collect, analyze, and interpret data; test hypotheses and draw conclusions; and write and defend a thesis. At the conclusion of the study and research program, an oral comprehensive examination, including a thesis defense, will be administered by the Advisory Committee and one additional graduate faculty member appointed as a witness by the Dean of the School of Forest Resources. Others may observe the examination upon approval by the Dean of the School of Forest Resources. The oral comprehensive examination will typically cover, but is not limited to, material presented in and related to the thesis, course work, and other appropriate literature and information. Unanimous agreement of the graduate committee will be required to pass a student. The student can request a second examination if he or she fails the first. A student who fails a second examination is withdrawn from the forest resources graduate program.

Forest Resources Core Curriculum

FRS 5113	Statistics in Research I	3 hrs.
FRS 5123	Statistics in Research II	3 hrs.
FRS 5223	Forest Ecosystem Ecology	3 hrs.
FRS 5691	Seminar (two required seminars)	2 hrs.
FRS 5101	Research Methods	1 hr.
FRS 579V	Research and Thesis	3-6 hrs.
	(based on the scope of individual thesis projects and determined by the Advisory Committee)	
Electives		12-15 hrs.
Total Hours		30 hrs.

Forest Resources Graduate Courses

FRS 5013 Southern Teachers' Conservation Workshop
FRS 502V Special Topics
FRS 5101 Research Methods
FRS 5113 Statistics in Research I
FRS 5123 Statistics in Research II
FRS 5133 Wildlife-Habitat Relationships
FRS 5143 Landscape Ecology
FRS 5203 Natural Resource Sociology
FRS 5223 Forest Ecosystem Ecology
FRS 5233 Natural Resource Policy
FRS 5253 Advanced Forest Economics
FRS 5283 Advanced Wood Properties and Products
FRS 5303 Modeling in Forest Management
FRS 5313 Digital Remote Sensing
FRS 5433 Silvicultural Systems
FRS 5513 Geoinfometrics
FRS 5691 Seminar

FRS 5723 Advanced Natural Resource Management
FRS 579V Research and Thesis
FRS 589V Independent Study

Graduate Courses

EDFD Courses
(Education)

EDFD 5003 History and Philosophy of Education
3 credits: 3 hours lecture
An analysis of major historical and philosophical developments and their impact on American education.

EDFD 5013 Southern Teachers' Conservation Workshop
(same as ELED 5013 and FRS 5013)
3 credits: 1 week of study
One week of intensive instruction and laboratory exercises on conservation issues. Course requires preparation of teaching plans.

EDFD 5023 Educational Research Methodology
3 credits: 3 hours lecture
Emphasizes qualitative and quantitative research design in education. Emphasis is placed on understanding the design of research studies and the development of an initial research study. This course should be taken within the first 15 hours of enrollment.

EDFD 5043 Instructional Technology
3 credits: 3 hours lecture
Treats media and instructional design with applications of state-of-the-art technology.

EDFD 5063 Psychological Foundations of Teaching and Learning
3 credits: 3 hours lecture
Consideration of historical, philosophical and societal impact on the school curriculum; emphasis on evaluation and analysis of curriculum development models and the change process.

EDFD 5123 Curriculum Development
3 credits: 3 hours lecture
Consideration of historical, philosophical and societal impact on the school curriculum; emphasis on evaluation and analysis of curriculum development models and the change process.

EDFD 5153 Child Development and the Family
3 credits: 3 hours lecture
Prerequisite: PSY 3433 or PSY 3443
Critical examination of the research relevant to developmental factors influencing the growth process of the individual from conception to adolescence. Particular emphasis on family functioning, and the family's influence on early child development.

EDFD 5203 Program for Effective Teaching
3 credits: 3 hours lecture
Systematic instruction based on the PET model, including provisions for demonstration teaching in the public schools and critique.

EDFD 5213 Teaching the At-Risk Child
3 credits: 3 hours lecture

Explores intervention strategies, relations with parents, counseling, special instructional strategies, and peer relations.

EDFD 5223 Supervision of Instruction
3 credits: 3 hours lecture
Methods of supervising instructional personnel, including teachers, aides, volunteers, student teachers, and field experience students.

EDFD 5243 Techniques of Systematic Instructional Development
3 credits: 3 hours lecture
Emphasized direct instruction, lesson design, and evaluation.

EDFD 5253 Behavior Management
3 credits: 3 hours lecture
Emphasis on using the theories and principles of applies behavior analysis for the improvement of student conduct and learning.

EDFD 5273 Teaching the Culturally Different Child
3 credits: 3 hours lecture
Identification and address of needs manifested by children from diverse backgrounds, with provisions for using resource people.

EDFD 5293 Special Topics
3 credits: 3 hours lecture
A series of specially designed courses which treat the major contemporary problems confronting today's educators. A maximum of 9 hours may be applied toward a degree.

EDFD 579V Independent Study
Variable credit
Consult the "Independent Study and Research" subheading in the Graduate Programs section of this catalog for prerequisites and description. Prior approval necessary for enrollment.

EDFD 5813 Supervision of Student Teaching
3 credits: 3 hours lecture
Treats organization, planning, and continuous evaluation of a planned sequence of observation and direct teaching experiences.

EDFD 5823 Independent Research in Education
3 credits: 3 hours research
Designed to allow an in-depth exploration of an educational topic. The advisory committee must approve the topic and the research methodology employed. The student will make a formal presentation related to the research and will present an approved copy of the final paper to the Office of Graduate Studies. May be repeated for credit. A maximum of six hours may apply to a degree.

EDFD 590V Distance Education Workshop
Variable Credit
Designed to provide learning opportunities through the use of compressed interactive video, satellite, and other sources. A maximum of 6 hours may be applied to a degree.

ELED Courses
(Elementary Education)

ELED 5013 Southern Teachers' Conservation Workshop
(same as EDFD 5013 and FRS 5013)
3 credits: 1 week of study

One week of intensive instruction and laboratory exercises on conservation issues. Course requires preparation of teaching plans.

ELED 5043 Teaching Mathematics
3 credits: 3 hours lecture
Application of theory and research finding to content, procedures and activities for the improvement of children's understanding of mathematics and competence in problem solving.

ELED 5063 Children's Literature
3 credits: 3 hours lecture
A study of literature with emphasis on selecting materials reflecting the differing needs of children in a pluralistic society.

ELED 5143 Teaching Science
3 credits: 3 hours lecture
Application of theory and research findings to content, procedures and activities for the improvement of children's understanding of science and competence in applying learned information in problem solving situations.

ELED 5203 Developmental and Corrective Reading
3 credits: 3 hours lecture
Application of learning theory and research findings to diagnosis and remediation of reading difficulties.

ELED 5243 Evaluation of Instruction
3 credits: 3 hours lecture
Treats normative and criterion-referenced approaches to the assessment of children's progress.

ELED 5263 Critical Reading in the Content Areas
3 credits: 3 hours lecture
Exploration of the problems in developing critical reading ability in subject areas.

ELED 5283 Special Topics Workshops
3 credits: 3 hours lecture
A series of specially designed workshops which treat major contemporary problems confronting elementary teachers. Limited to 3 hours utilizable for degree credit.

ELED 5343 Teaching Social Studies
3 credits: 3 hours lecture
Application of theory and research findings to content, procedures and activities for the improvement of children's understanding of social studies and competence in applying learned information in appropriate situations.

ELED 5606 Science, Mathematics, and Reading: An Interdisciplinary Approach
6 credits: 6 hours lecture
The learning of science, mathematics, and reading as active, integrated, constructive processes involving experimentation, investigation, communication, and problem solving.

ELED 579V Independent Study in Elementary Education
Variable Credit
Consult the "Independent Study and Research" subheading in the Graduate Programs section of this catalog for prerequisites and description. Prior approval necessary for enrollment.

ENGL Courses
(English)

ENGL 5013 Advanced Studies in American Literature I
3 credits: 3 hours lecture

An in-depth study of major writers, periods, movements, and themes in American literature from the beginning to 1850.

ENGL 5023 Advanced Studies in American Literature II
3 credits: 3 hours lecture
An in-depth study of major writers, periods, movements, and themes in American literature from 1850 to the present.

ENGL 5053 Advanced Studies in British Literature I
3 credits: 3 hours lecture
An in-depth study of major writers, periods, movements, and themes in British literature from the Middle Ages through the 18th century.

ENGL 5063 Advanced Studies in British Literature II
3 credits: 3 hours lecture
An in-depth study of major writers, periods, movements, and themes in British literature from the Romantic Period to the 1960's.

ENGL 5093 Studies in Composition
3 credits: 3 hours lecture
Theory of and research in composition, its history and its cognitive and social dimensions. The course emphasizes the effective teaching of writing.

ENGL 5123 The English Language and the Teacher
3 credits: 3 hours lecture
Current research on the English language, its history, its grammar, dialects and uses, with an emphasis on how language is learned and used in the classroom.

ENGL 5153 Special Topics in Language and Literature
3 credits: 3 hours lecture
Detailed study of a specific topic in language and/or literature, emphasizing readings and individual research. Topics selected may cover themes, genres, single authors, national literatures or other history or language-related subjects. May be repeated for a total of 6 hours credit when different topics are covered.

ENGL 579V Independent Study in English
Variable Credit
Consult the "Independent Study and Research" policy in the Graduate Programs section of this catalog for prerequisites and description. Prior approval necessary for enrollment.

FRS Courses
(Forest Resources)

FRS 5013 Southern Teachers' Conservation Workshop
(same as EDFD 5013 and ELED 5013)
3 credits: 1 week of study
One week of intensive instruction and laboratory exercises on conservation issues. Course requires preparation of teaching plans.
FRS 502V Special Topics
Variable credit
Selected topics in forest resources.

FRS 5101 Research Methods
1 credit: 1 hour lecture
Introduction to the conceptual and technical aspects of research. Topics include the scientific method, science reasoning, truth, misconduct in science, literature searching, and software packages. A case study in poor science is

used to re-enforce research principles.

FRS 5113 Statistics in Research I
3 credits: 2 hours lecture, 2 hours lab
Fundamental concepts and applications of statistics with focus on natural resources. Probability and distribution theory; estimation and hypothesis tests involving one parameter; hypothesis tests involving two parameters; simple and multiple linear regression. Use of statistical software.

FRS 5123 Statistics in Research II
3 credits: 2 hours lecture, 2 hours lab
Prerequisite: FRS 5113 or permission of instructor. Essential concepts and applications of statistics with focus on natural resources. Analysis of variance; multiple range tests; analysis of covariance; higher order experimental designs; categorical data; non-linear regression. Use of statistical software.

FRS 5133 Wildlife-Habitat Relationships
3 credits: 3 hours lecture
Prerequisites: One course in wildlife ecology or permission of instructor. Advanced concepts in wildlife-habitat relationships. Combines study of natural history and ecological theory to investigate and discuss wildlife-habitat concepts.

FRS 5143 Landscape Ecology
3 credits: 3 hours lecture
Prerequisites: One course in ecology or permission of instructor. Advanced concepts associated with landscape ecology. Study of spatial variation in landscapes at a variety of scales. Includes biophysical and societal causes and consequences of landscape heterogeneity.

FRS 5203 Natural Resource Sociology
3 credits: 3 hours lecture
Foundations for understanding human-natural resource relationships. Development of a theoretical understanding of the importance of viewing humans as part of the natural resource decision making process.

FRS 5223 Forest Ecosystem Ecology
3 credits: 3 hours lecture
Prerequisites: Graduate status and one course in ecology. Advance study into the structure and function of forest ecosystems including current and founding theories on energy flow, nutrient cycling, temporal change in and disturbance of ecosystems, landscape and spatial relationships, biodiversity, and anthropogenic alteration of ecosystems.

FRS 5233 Natural Resource Policy
3 credits: 2 hours lecture, 3 hours laboratory
Foundations for understanding forest and natural resource policy. Historical context of policy as well as social, biological, and political constraints and ramifications of natural resource policy.

FRS 5253 Advanced Forest Economics
3 credits: 3 hours lecture
Prerequisites: FOR 4673 or equivalent; MATH 1073 or equivalent; FRS 5113 and FRS 5123. Advanced economic principles applied to forest-based natural resource problems. Valuation, forecasting, inventory models, supply and production of forest outputs, regional economic analysis. Readings and problems.

FRS 5283 Advanced Wood Properties and Products
3 credits: 3 hours lecture
Structure and properties (physical and mechanical) of wood, tree growth and wood properties, and wood products (processing and raw materials).

FRS 5303 Modeling in Forest Management

3 credits: 3 hours lecture
Prerequisite: FRS 5113 or permission of instructor. Study of models as applied to forest patterns and dynamics, including concepts and methods of modeling. Includes designing, coding, calibrating, running, and modifying computer programs that model basic forestry operations.

FRS 5313 Digital Remote Sensing
3 credits: 2 hours lecture, 3 hours laboratory Prerequisites: FRS 5113, FRS 2312, FOR / WLF 3813, or permission of instructor. Advanced digital remote sensing concepts. Includes principles of remote sensing for mapping, landcover classification, and analysis of spectral data.

FRS 5433 Silvicultural Systems
3 credits: 3 hours lecture
Prerequisite: FRS 3434. Analyses of contemporary silvicultural practices and formulation of silvicultural systems based on ecological, economic, and sociological constraints, especially as related to forests of the West Gulf Coastal Plain.

FRS 5513 Geoinfometrics
3 credits: 2 hours lecture, 3 hours laboratory
Prerequisites: FRS 5113, FOR 2312, and FOR / WLF 3813, or permission of instructor.
Advanced GIS emphasizing geostatistics and data analysis techniques applied to natural resource management. Includes both vector and raster modeling, as well as programming and algorithm development.

FRS 5691 Seminar
1 credit: 1 hour lecture
Discussions and presentations relating to forest resource topics. May be repeated for credit.

FRS 5723 Advanced Natural Resource Management
3 credits: 3 hours lecture
Prerequisite: FOR 4723 or permission of instructor. Natural resource principles considering timber and non-timber resources; forest models; principles of forest regulation; harvest scheduling; decision analysis; investment analysis; and analytical techniques and computer applications in forest management.

FRS 579V Research and Thesis
Variable credit
Research while enrolled for a master's degree under the direction of faculty members.

FRS 589V Independent Study in Forest Resources
Variable credit: 9 hours maximum
Consult the "Independent Study and Research" subheading in the Graduate Programs section of this catalog for prerequisites and description. Prior approval necessary for enrollment.

GEOG Courses
(Geography)

GEOG 5113 World Geography
3 credits: 3 hours lecture
Focus on selected regions of the world to be chosen from among Europe, Africa, West Asia, North America, and Latin America. Emphasis on physical, political, cultural, and economic characteristics of the selected regions.

GSCI Courses
(General Science)

GSCI 5013 Advanced Biology
3 credits: 2 hours lecture, 3 hours laboratory
Prerequisite: 12 hours of biology

Basic concepts and principles of the study of life, including biochemistry, cell structure and function, respiration and photosynthesis, transmission genetics, molecular genetics, evolution, and ecology.

GSCI 5043 Advanced Geology
3 credits: 2 hours lecture, 3 hours laboratory
Prerequisite: 12 hours of physical sciences
Materials of the earth's crust and the processes and agents which affect them; earth history interpreted from rocks and fossils.

GSCI 5063 Advanced Chemistry
3 credits: 2 hours lecture, 3 hours laboratory
Prerequisites: 12 hours of chemistry or 8 hours of chemistry and at least 2 years experience teaching chemistry at the secondary level
Composition, occurrence, preparation, properties and uses of matter, the changes it undergoes, its energy relations, and the laws governing its behavior.

GSCI 5083 Advanced Physics
3 credits: 2 hours lecture, 3 hours laboratory
Prerequisites: 12 hours of physics or 8 hours of physics and at least 2 years experience teaching physics at the secondary level
Forms of energy and properties of matter - mechanics, heat, magnetism, electricity, sound, and light.

GSCI 5203 Molecular Genetics
3 credits: 2 hours lecture, 3 hours laboratory
Prerequisites: 8 hours of biology and 8 hours of chemistry
DNA biology; recombinant DNA techniques and applications; laboratory methods.

GSCI 5243 Advanced Environmental Science
3 credits: 2 hours lecture, 3 hours laboratory
Prerequisites: 12 hours of course work in chemistry and/or biology
Natural environments and ecosystems, and their degradation by pollution, habitat destruction and loss of biodiversity.

GSCI 5263 Advanced Field Biology
3 credits: 2 hours lecture, 3 hours laboratory
Prerequisites: 12 hours of biology
Survey of the plant and animal kingdoms emphasizing recognition and natural history of local flora and fauna.

GSCI 528V Special Topics in Advanced Science Teaching
Variable credit
Selected topics in contemporary science appropriate for high school teachers.

GSCI 5303 Higher Order Thinking in Science
3 credits: 3 hours lecture
This course stresses the learning of science as an active, integrated, constructive process involving experimentation, investigation, communication, reasoning, and problem solving.

HIST Courses
(History)

HIST 5013 American History
3 credits: 3 hours lecture
A thematic view of American history, with a historiographical emphasis. Possible topics include reform movements, social trends, and wars.

HIST 5023 World History
3 credits: 3 hours lecture
Major themes in the intellectual, social, political, and economic developments which have shaped our world from earliest times to the present. Included will be Asian, African, American, and Western civilizations.

HIST 5033 Historiography and Research
3 credits: 3 hours lecture
An introduction to research and historical writing, including a review of major historians and trends in the writing of history.

HIST 5123 Arkansas History
3 credits: 3 hours lecture
An overview of Arkansas history from the earliest times to the present, with emphasis on the State's political, social, and economic development. Designed especially for those preparing to teach Arkansas history.

HIST 5133 Africa in Global Perspective
3 credits: 3 hours lecture
Major themes in African history from earliest times to the present; emphasis on the continuity of African civilization through the centuries and the interplay of African culture with Islamic and Western influences.

HIST 5143 Colonial America
3 credits: 3 hours lecture
An intensive survey of European settlement in North America from the Columbian voyages to 1789. Emphasis on the emergence of Anglo-American cultural and political institutions culminating in the War of Independence.

HIST 5153 America in Peace and War
3 credits: 3 hours lecture
An in-depth view of America between 1919 and 1945, with emphasis on cultural conflict in the 1920's and the impact of the Depression, the New Deal, and World War II on the American people.

HIST 5163 America since 1945
3 credits: 3 hours lecture
An in-depth view of America in the past half-century, with emphasis on political, social, and economic change.

HIST 5603 Selected Readings in History
3 credits: 3 hours lecture
Advanced readings in an area of history. To be selected in consultation with the course instructor.

HIST 581V Field Study
Variable credit
Classroom and/or field studies of historically significant sites.

MAED Courses
(Mathematics Education)

MAED 5013 Geometry
3 credits: 3 hours lecture
Prerequisite: MATH 3423
A study of formal and informal geometries, geometric constructions, applications, and learning theory.

MAED 5023 Linear Algebra
3 credits: 3 hours lecture
Prerequisite: Completion of the calculus sequence

A study of linear algebra with an emphasis on topics relevant to the secondary school curriculum.

MAED 5033 Probability and Statistics
3 credits: 3 hours lecture
Prerequisite: Completion of the calculus sequence
The mathematical theory of probability and its application to statistical inference.

MAED 5043 Intermediate Analysis
3 credits: 3 hours lecture
Prerequisite: Completion of the calculus sequence
Topics from calculus designed to prepare teachers of calculus.

MAED 5203 History of Mathematics
3 credits: 3 hours lecture
Prerequisite: MATH 2254
A study of selected topics in the history of mathematics with emphasis on the biographies of important mathematicians and the development of significant mathematical ideas.

MAED 5243 Modern Algebra
3 credits; 3 hours lecture
Prerequisite: Completion of the calculus sequence.
A study of abstract algebraic structures including groups, rings, and fields. Also a survey of number theory to include equivalence relations, divisibility, congruences, and prime distribution.

MAED 5263 Higher Order Thinking in Mathematics
3 credits: 3 hours lecture
This course provides mathematics teachers in grades five through college with examples of lessons incorporating methods appropriate for students with different learning styles. These lessons emphasize the use of manipulatives, hands-on materials, cooperative learning techniques, portfolio assessment strategies, and technology.

MAED 5273 Discrete Mathematics
3 credits: 3 hours lecture
Prerequisite: Completion of the calculus sequence
A survey of discrete mathematical systems, including graph theory, combinatorics, and Boolean algebras.

MAED 5293 Topics in Mathematics
3 credits: 3 hours lecture
Prerequisite: Permission of instructor
Selected topics in contemporary mathematics appropriate for high school teachers.

MAED 579V Independent Study in Mathematics
Variable credit
Consult the "Independent Study and Research" subheading in the Graduate Programs section of this catalog for prerequisites and description. Prior approval necessary for enrollment. This course may be repeated for a maximum of 6 hours.

P E COURSES
(Physical Education)

P E 5003 Applied Evaluation in Physical Education
3 credits: 3 hours lecture
Advanced methods of assessment for the components of physical and motor fitness. Latest evaluation procedures in physical education, including review of current literature.

P E 5033 Research Methods Application in Physical Education

3 credits: 3 hours lecture
Study of significant research, research methods, and the application of modern research principles to physical education and related areas.

P E 5103 Advanced Exercise Physiology
3 credits: 3 hours laboratory
Exercise physiology and its application to fitness and training with emphasis on recent research, energy metabolism, cardiovascular respiratory function, ergometry, body composition, work capacity, ergogenic aids, aging, health risk factors, and environmental stress.

P E 5133 Problems and Trends in Physical Education
3 credits: 3 hours lecture
The analysis of current literature and research in the field of physical education with emphasis on the isolation of current problems and possible solutions to special problems.

P E 5213 School and Community Activity Planning
3 credits: 3 hours lecture
Organization and administration of recreational programs and activities. Finance, promotion, joint use of areas and facilities, group and individual activities, yearly programs, and future trends.

P E 5233 Adapted Individually Prescribed Program Practicum
3 credits; 3 hours lecture
Diagnostic and prescriptive evaluation in adapted physical education with hands-on testing exposure in areas of low motor ability and fitness. The Adapted Physical Education Individualized Program and its relation to the Special Education Individualized Education Program (IEP) will be stressed.

P E 5243 Kinesiology
3 credits: 3 hours laboratory
Human movement and related anatomical and mechanical principles. Biomechanical analysis of joint movement, stability and range of movement, neuro-muscular physiology, and electromyography.

P E 5253 Psychology of Sports in Physical Education
3 credits: 3 hours lecture
A study of selected material from literature in sociology, social psychology, and physical education dealing with the effects and interaction of these areas. Topics dealing with competition, cooperation, the audience, leadership, group interaction and maturation will be considered along with analysis of the cultural significance of sports in contemporary society.

P E 5313 Applied Nutrition in Wellness and Sports
3 credits: 3 hours laboratory
The practical application of modern principles to develop nutritional plans for students, sports participants, and later life fitness. Modern computerized nutritional programs utilized and hands-on experience with modern instrumentation and case studies provided for basal metabolism, lean weight, fat weight, caloric expenditure, and the use of proper exercise with various nutritional plans.

PSCI Courses
(Political Science)

PSCI 5013 American Political System
3 credits: 3 hours lecture
Major approaches to the study of American government. Emphasis on approaches to the study of the Presidency, Congress, the Judiciary, political parties, and interest groups.

PSCI 5103 The Middle East in Global Perspective
3 credits: 3 hours lecture

Major elements of Middle Eastern politics. Emphasis on interaction of cultural, social, political, and economic factors which determine political behavior in the Middle East.

PSCI 5123 Global Studies
3 credits: 3 hours lecture
Nature and analysis of contemporary global issues. Emphasis on frameworks for analyzing global problems and in-depth acquaintance with selected world issues.

PSCI 5133 Selected Readings in Political Science
3 credits: 3 hours lecture
Advanced readings in an area of political science. To be selected in consultation with the course instructor.

S ED Courses
(Secondary Education)

S ED 5523 The Middle School
3 credits: 3 hours lecture
Treats the unique psychological and physiological needs of middle school children; emphasizes articulation between elementary and high school and considers appropriate curriculum and proper co-curricular activities.

S ED 5543 Special Topics
3 credits: 3 hours lecture
A series of specially designed courses which treat the major contemporary issues confronting secondary teachers. Limited to 9 hours applicable to degree requirements.