BIO 584 Wildlife Policy and Administration
BIO 586 Limnology
BIO 587 Freshwater Biology
BIO 588 Reservoir Ecology
BIO 595 Internship

and 3-5 credits from the following:
AGR 328 Statistics for Food and Agriculture
AGR 345 Soil Science
and
AGR 346 Soil Science Lab
CHE 330 Biochemistry
CSC 101 Introduction to Problem Solving using Computers
GSC 125 Weather and Climate
GSC 199 Earth Science
GSC 200 Introduction to Oceanography
GSC 210 Hydrology
GSC 303 Introduction to Water Science
GSC 305 Introduction to Cartography
GSC 312 Introduction to Remote Sensing
GSC 314 Sediments and Soils
GSC 424 Conservation and Environmental Geosciences
GSC 512 Remote Sensing
GSC 521 Geographic Information Systems
MAT 250 Calculus and Analytic Geometry I[1]
PHY 235 Mechanics, Heat and Wave Motion
PHY 255 Electricity, Magnetism, and Light
PSY 300 Principles and Methods of Statistical Analysis
STA 235 Introduction to Probability and Statistics

.....

.....

AREA:
Wildlife and Conservation Biology/Wildlife Biology Track

(See *Academic Degrees and Programs.*)

University Studies selections must include:

STA	135	Introduction to Probability and Statistics
CHE	105	Introductory Chemistry
	or	
CHE	201	General College Chemistry
MAT	150	Algebra and Trigonometry
	or	
MAT	250	Calculus and Analytical Geometry I
ECO	231	Principles of Microeconomics
BIO	216	Biological Inquiry and Analysis
ENG	224	Writing for the Professions

BIO	100T	Transitions
BIO	115	The Cellular Basis of Life
BIO	149	Introduction to Wildlife and Conservation Biology
BIO	221	Zoology: Animal Form and Function
BIO	222	Botany: Plant Form and Function
BIO	310	Vertebrate Natural History
BIO	330	Principles of Ecology
BIO	333	Genetics
BIO	380	Wildlife Techniques
BIO	499	

Chemistry Teaching Specialization

The teaching specialization in chemistry is a path to secondary certification in chemistry, designed to accompany certification in another science content area. (All College of Education and Human Services secondary certification course requirements must be met.) The teaching specialization in chemistry meets and exceeds Murray State University's requirements for a minor in chemistry. Even though this program exceeds Murray State University's requirements for a chemistry minor, in order for a chemistry minor to appear on a transcript, a minor must be declared, and all r l' l' trscience conten M lب 's 2 me M'O a

ARC 402 Archaeological Field Work II
ARC 425 Advanced Archaeological Laboratory Methods
ARC 488 Cooperative Education/Internship
ARC 489 Cooperative Education/Internship
ARC 500 Directed Studies
ARC 510 Advanced Archaeological Field Work
CET 280 Plane Surveying
GSC 306 Landscapes of the National Parks
GSC 310 Rock and Mineral Resources
GSC 350 Field Techniques in Geosciences
GSC 388 International Experience in the Geosciences
GSC 521 Geographic Information Systems

MAT 150[2] (or above)
CSC 101[3] or CSC 199[3]

[1]Will count towards University Studies Global Awareness, Cultural Diversity, and the World's Artistic Tradition requirements.
[2]Will count towards University Studies Scientific Inquiry, Methodologies, and Quantitative Skills requirements.
[3]This is a University Studies elective writing-intensive or technology-intensive course.

AREA:
Geoscience/Geographic Information Science Track

(See *Academic Degrees and Programs*.)

ARC 150 Introduction to Archaeology[1]
GSC 100T Transitions
GSC 101 The Earth and the Environment[2]
GSC 110 World Geography[1]
GSC 125 Weather and Climate[2]
GSC 202 Introduction to Geographic Information Sciences
GSC 301 Understanding Scientific Communication
GSC 305 Introduction to Cartography
GSC 312 Introduction to Remote Sensing
GSC 330 Economic Geography
GSC 336 Principles of Geomorphology
GSC 512 Remote Sensing
GSC 521 Geographic Information Systems

Choose from the following approved electives:
GSC 210 Hydrology
GSC 303 Introduction to Water Science
GSC 306 Landscapes of the National Park
GSC 310 Rock and Mineral Resources
GSC 314 Sediments and Soils
GSC 350 Field Techniques in Geosciences
GSC 390 Geoarchaeology
GSC 424

Graduate Program

Graduate Coordinator - Robin Zhang

The Department of Geosciences offers a Master of Science degree in Geosciences. Students choose the thesis or the non-thesis option. Four concentrations are offered for the thesis option: Environmental Geology, Geoarchaeology, Geoinformatcs, and Watershed Sciences. Each student's program is developed in consultation with the graduate coordinator.

The is an interdisciplinary master's program within the Jones College of Science, Engineering and Technology designed to prepare students for further graduate studies or careers in either the public or private sector. This concentration focuses on the chemical, physical, and biological aspects of environmental change both in the present and in the geologic past.

The is an interdisciplinary master's degree program designed to prepare students for further graduate studies or careers in the public or private sector. The geoarchaeology concentration offers students a broad range of options to develop a curriculum that matches their particular interests and needs. The geoarchaeology concentration emphasizes the relationship between human culture and the natural environment and provides opportunities to apply the principles and methods of geoscience research in an archaeological context.

The is designed to prepare students for further graduate studies or careers in the field of geospatal information science and technology. Geospatal technology is a fast growing field with broad and multidisciplinary applications that has penetrated every aspect of our daily lives. The Geoinformatcs Concentration provides students with up-to-date training on geospatal theory, application, and technology.

The is jointly sponsored between the Department of Geosciences and the Watershed Studies Institute (WSI). The Watershed Studies Institute program in Watershed Science is an interdisciplinary master's program within the Jones College of Science, Engineering and Technology designed to prepare students for careers or for further graduate studies in the broader aspects of watershed management and science. The student's program is developed in consultation with the graduate coordinator. Visit the Watershed Studies Institute site to learn more.

PHY 235 Mechanics, Heat and Wave Motion
PHY 236 Mechanics, Heat and Wave Motion Laboratory
PHY 255 Electricity, Magnetism and Light
PHY 256 Electricity, Magnetism and Light Laboratory
PHY 460 Electricity and Magnetism I
PHY 470 Optics
PHY 530 Mechanics I
PHY 580 Modern Physics I

CHE 201 General College Chemistry[1, 2]
CHE 202 General Chemistry and Qualitative Analysis[1, 2]
CSC 420 Numerical Analysis I
or
MAT 442 Introduction to Numerical Analysis[2]
MAT 250 Calculus and Analytic Geometry I[1, 2]
MAT 308 Calculus and Analytic Geometry II[1, 2]
MAT 309 Calculus and Analytic Geometry III[1, 2]
MAT 338 Ordinary Differential Equations[2]

PHY/EGR courses numbered 300 or above.

[1]Fulfill University Studies requirements. Required for major if not taken as a University Studies requirement.
[2]CHE 201 and 202 fulfill requirements for a minor in chemistry; MAT 250, 308, 309, 338, and 442 fulfill requirements for a minor in math.

MAJOR:

NOTE: *Requirements for teacher certification are established by the Kentucky Education Professional Standards Board. Students are cautioned that changes in these requirements may occur. For current information, student should check with an advisor in the Department of Adolescent, Career and Special Education and with Teacher Education Services.*

(See *Academic Degrees and Programs*.)

University Studies selections must include:

EDP 260 Psychology of Human Development

Certification requires a grade of *B* or better in one English composition course and a *B* or better in a University Studies math course, public speaking, and EDU 103 or equivalent course. Additional requirements for admission to teacher education and student teaching must be met. See advisor and/or Office of Teacher Education Services for details.

EGR 140 Introduction to Computing Applications in Science and Engineering
EGR 240 Thermodynamics I
EGR 390 Engineering Measurements
PHY 100T Transitions
PHY 235 Mechanics, Heat and Wave Motion
PHY 236 Mechanics, Heat and Wave Motion Laboratory
PHY 255 Electricity, Magnetism and Light
PHY 256 Electricity, Magnetism and Light Laboratory
PHY 460 Electricity and Magnetism I
PHY 470 Optics
PHY 530 Mechanics I
PHY 580 Modern Physics I

CHE 201 General College Chemistry[1, 2]
CHE 202 General Chemistry and Qualitative Analysis[1, 2]

AREA:
Applied Physics

•

GSC 101 The Earth and the Environment
MAT 230 Technical Math II

.....

CET 280 Plane Surveying
CET 284 Sustainable Design and Construction
CET 385 Construction Estimating I
CET 480 Construction Planning and Management
ENG 324 Technical Writing
ENT 100T Transitions
ENT 287 Statics for Technology
ENT 358 Mechanical and Electrical Systems
ENT 382 Hydraulics
ENT 393 Engineering Economy
ENT 419 Senior Project I
IET 125 Analytical Methods in Engineering Technology
IET 399 Professional Development Seminar I
IET 488 Cooperative Education/Internship
ITD 107 Introduction to Technical Drawing and Computer-Aided Drafting

.....

CET 298 Strength of Materials
CET 310 Anatomy of Buildings
CET 481 Structural Steel Design
CET 482 Reinforced Concrete Design
CET 483 Construction Materials
ITD 104 Computer Aided Design
ITD 301 Architectural Design I
ITD 401 Architectural Design II
ITD 503 Architectural Design III

.....

AREA:

CET 585 Remediation Technology
CHE 111 Essentials of Chemistry and Biochemistry
ENT 286 Introduction to Environmental Engineering Technology
ENT 400 Energy Management
GSC 202 Introduction to Geographic Information Science
STA 135 Probability and Statistics

.....

AREA: Civil Engineering Technology/Surveying Engineering Technology Track

.....

(See