RECOMMENDED ADDITIONAL SCIENCE COURSES

The following is a listing of recommended courses to be utilized to fulfill the Related Science "Additional Science" 20 semester hour requirement. These courses were compiled from the Southern Illinois University Catalog, . For the purpose of creating this list, science is defined as the observation, identification, description, experimental investigation and theoretical explanation of natural phenomena (The American Heritage Dictionary, 2nd Ed., Houghton Mifflin Co., 1991).

Southern Illinois University

Agricultural Sciences (AGRI)
- AGRI 333 – 2sh: Agriculture and Forestry Environmental Problems
- AGRI 423 – 3sh: Environmental Interpretation

Agricultural Systems (AGSY)
- AGSY 170 – 4sh: Introduction to Physical Principles in Agriculture
- AGSY 361 – 3sh: Introduction to Control Programming
- AGSY 363 – 3sh: Agricultural Electrical and Electronics Systems
- AGSY 438 – 3sh: Techniques in Plant Molecular Biology
- AGSY 461 – 3sh: Programming for Agricultural Systems
- AGSY 472 – 3sh: Precision Agriculture

Animal Science (ANS)
- ANS 121 – 3sh: Introduction to Animal Science
- ANS 331 – 4sh: Physiology, Growth and Development of Farm Animals
- ANS 332 – 3sh: Animal Genetics
- ANS 333 – 1sh: Animal Genetics Laboratory
- ANS 337 – 3sh: Animal Health
- ANS 425 – 3sh: Biochemical Aspects in Nutrition
- ANS 426 – 3sh: Mammalian Endocrinology
- ANS 431 – 4sh: Reproductive Physiology
- ANS 433 – 4sh: Introduction to Agricultural Biotechnology

Anthropology (ANTH)
- ANTH 104 – 3sh: The Human Experience – Anthropology
- ANTH 201 – 3sh: Archaeology of Illinois
- ANTH 210 – 3sh: Survey of the Primates
- ANTH 221 – 3sh: The Anthropology of Sexual Behavior
- ANTH 300A – 3sh: Introduction to Biological Anthropology
- ANTH 300C – 3sh: Introduction to Archaeology
- ANTH 300E – 1sh: Bioanthropology Laboratory
- ANTH 330 – 3sh: Biological Foundations of Human Behavior
- ANTH 331 – 3sh: Forensic Anthropology

Biochemistry (BCHM)
- BCHM 451 – 6sh: Biochemistry
- BCHM 456 – 6sh: Biophysical Chemistry
- BCHM 490 – 1 to 3 sh: Undergraduate Research Participation

Biological Sciences (BIOL)
- BIOL 200A – 3sh: Cell and Molecular Biology, Genetics and Evolution
- BIOL 200B – 3sh: Organismal and Ecological Biology
- BIOL 202 – 3sh: Human Genetics and Human Health
- BIOL 210 – 2 to 6 sh: Biology Field Studies
- BIOL 305 – 3sh: Principles of Genetics
- BIOL 306 – 3sh: Cell Biology
- BIOL 307 – 3sh: Principles of Ecology
- BIOL 308 – 3sh: Organismic Functional Biology
- BIOL 309 – 3sh: Developmental Biology

Chemistry (CHEM) ***Above the required 8 semester hours***
- CHEM 106 – 3sh: Chemistry and Society
- CHEM 140 – 8sh: Chemistry (two semester course)
- CHEM 200 – 3sh: Introduction to Chemical Principles
- CHEM 201 – 1sh: General Chemistry Laboratory I
- CHEM 210 – 3sh: General and Inorganic Chemistry
- CHEM 211 – 1sh: General Chemistry Laboratory II
- CHEM 230 – 4sh: Quantitative Analysis
- CHEM 339 – 3sh: Introduction to Organic Chemistry
- CHEM 340 – 3sh: Organic Chemistry I
- CHEM 341 – 2sh: Organic Chemistry Laboratory I
- CHEM 342 – 3sh: Organic Chemistry II
- CHEM 343 – 2sh: Organic Chemistry Laboratory II
- CHEM 350 – 3sh: Introduction to Biological Chemistry
- CHEM 351 – 1sh: Biochemistry Laboratory
- CHEM 410 – 2sh: Inorganic Synthesis and Characterization Laboratory
- CHEM 411 – 3sh: Intermediate Inorganic Chemistry
- CHEM 431 - 3sh: Environmental Chemistry
- CHEM 434 - 2 to 4sh: Instrumental Analytical Chemistry
- CHEM 439 - 3sh: Forensic Chemistry
- CHEM 444 - 3sh: Intermediate Organic Chemistry
- CHEM 451 - 6sh (a,b): Biochemistry
- CHEM 456 - 3sh: Biophysical Chemistry
- CHEM 461 - 3sh: Quantum Mechanics and Spectroscopy
- CHEM 462 - 3sh: Classical Physical Chemistry
- CHEM 466 - 2sh: Physical Chemistry Laboratory
- CHEM 468 - 3sh: Application of Symmetry to Chemistry
- CHEM 479 - 3sh: Principles of Materials Chemistry

Civil and Environmental Engineering (CE): These courses all considered Engineering Science

* - Surveying course to be counted if 24 semester hour requirement exceeded.

CE 101 - 1sh: Introduction to Civil and Environmental Engineering
CE 102 - 2sh: Civil Engineering Computer Aided Design and Drafting
CE 250 - 3sh: Statics
CE 263 - 3sh: Basic Surveying *
CE 310 - 3sh: Environmental Engineering
CE 320 - 3sh: Soil Mechanics
CE 330 - 3sh: Civil Engineering Materials
CE 331 - 3sh: Transportation Engineering
CE 340 - 3sh: Structures
CE 350 - 3sh: Mechanics of Materials
CE 361 - 3sh: Civil Engineering Surveying *
CE 362 - 3sh: Land Surveying *
CE 363 - 3sh: Control/Construction Surveying *
CE 370 - 3sh: Fluid Mechanics
CE 410 - 3sh: Solid Waste Engineering
CE 412 - 3sh: Contaminant Flow, Transport and Remediation of Porous Media
CE 413 - 3sh: Collection Systems Design
CE 415 - 3sh: Wastewater Treatment
CE 418 - 3sh: Water and Wastewater Treatment
CE 419 - 3sh: Advanced Water and Wastewater Treatment
CE 421 - 3sh: Foundation Design
CE 422 - 3sh: Environmental Geotechnology
CE 423 - 3sh: Geotechnical Engineering in Professional Practice
CE 431 - 3sh: Pavement Design
CE 440 - 3sh: Statically Indeterminate Structures
CE 441 - 3sh: Matrix Methods of Structural Analysis
CE 442 - 3sh: Structural Steel Design
CE 444 - 3sh: Reinforced Concrete Design
CE 445 - 3sh: Reinforced Masonry Design
CE 446 - 3sh: Prestressed Concrete Design
CE 447 - 3sh: Seismic Design of Structures
CE 461 - 3sh: Legal Aspects of Surveying *
CE 462 - 3sh: Survey Design and Land Development *
CE 463 - 3sh: Field Survey Problems *
CE 464 - 3sh: Field Survey Planning and Computation *
CE 465 - 3sh: Photogrammetry *
CE 471 - 3sh: Groundwater Hydrology
CE 472 - 3sh: Open Channel Hydraulics
CE 473 - 3sh: Hydrologic Analysis and Design
CE 474 - 3sh: Hydraulic Engineering Design
CE 492 -1 to 4sh: Special Problems in Civil Engineering
CE 495 - 6sh: Civil Engineering Design

Computer Science (CS)

CS 105 - 3sh: Introduction to Application Software
CS 200B - 3sh: Computer Concepts
CS 201 - 3sh: Problem Solving with Computers
CS 202 - 4sh: Introduction to Computer Science
CS 215 - 3sh: Discrete Mathematics
CS 220 - 3sh: Programming with Data Structures
CS 300 - 3sh: Introduction to Linux
CS 301 - 3sh: Introduction to Visual Basic
CS 304 - 3sh: Advanced Object-Oriented Programming
CS 306 - 3sh: Linus/UNIX Programming
CS 311 - 3sh: Design and Implementation of Programming Languages
CS 315 - 3sh: Computer Logic and Digital Design
CS 320 - 3sh: Computer Organization and Architecture
CS 330 - 3sh: Advanced Data Structures and Alogrithms
CS 350 - 3sh: Web Application Development
CS 401 - 3sh: Computer Architecture
CS 402 - 3sh: Theory and Applications of Computer Aided Design
CS 406 - 3sh: Basic Linux System Administration
CS 410 - 3sh: Computer Security
CS 412 - 3sh: Programming Distributed Applications
CS 414 - 3sh: Operating Systems
CS 416 - 3sh: Compiler Construction
CS 420 - 3sh: Parallel and Distributed Computing
CS 430 - 3sh: Database Systems
CS 435 - 3sh: Software Design and Development
CS 436 - 3sh: Artificial Intelligence 1
CS 437 - 3sh: Expert Systems
CS 438 - 3sh: Bioinformatics Alogrithms
CS 440 - 3sh: Computer Networks
CS 441 - 3sh: Mobile and Wireless Computing
CS 447 - 3sh: Introduction to Graph Theory
CS 449 - 3sh: Introduction to Combinatorics
CS 451 - 3sh: Theory of Computing
CS 455 - 3sh: Design and Analysis of Computer Alogrithms
CS 471 - 3sh: Optimization Techniques
CS 472 - 3sh: Linear Programming
CS 475 - 6sh: Numerical Analysis
CS 484 - 3sh: User Interface Design and Development
CS 485 - 3sh: Computer Graphics

Electrical and Computer Engineering (ECE)

ECE 101 - 3sh: Introduction to Electrical and Computer Engineering
ECE 222 - 3sh: Introduction to Digital Computing
ECE 225 - 4sh: Introduction to Discrete Logic and Digital Systems
ECE 235 - 4sh: Electric Circuits
ECE 315 - 4sh: Mathematical Methods in Engineering
ECE 321 - 3sh: Introduction to Software Engineering
ECE 327 - 4sh: Digital Circuit Design
ECE 329 - 4sh: Computer Organization and Design
ECE 345 - 4sh: Electronics
ECE 355 - 4sh: Signals and Systems
ECE 356 - 4sh: Systems and Controls
ECE 375 - 3sh: Introduction to Electromagnetic Fields
ECE 385 - 4sh: Electromechanical Energy Conversion
ECE 421 - 4sh: Synthesis with Hardware Description Languages
ECE 422 - 4sh: Introduction to Data Communications Networks
ECE 423 - 4sh: Digital VLSI Design
ECE 424 - 4sh: Microprocessor-Based Systems
ECE 425 - 4sh: VLSI Design and Test Automation
ECE 428 - 4sh: Programmable ASIC's Design
ECE 429 - 4sh: Computer Systems Architecture
ECE 440 - 4sh: CMOS Radio-Frequency Integrated Circuit Design I
ECE 441 - 4sh: Photonics I
ECE 446 - 4sh: Electronic Circuit Design
ECE 447 - 4sh: Electronic Devices
ECE 448 - 4sh: Photonics II
ECE 456 Embedded Control and Mechatronics
ECE 459 - 4sh: MEMS and Micro-Engineering
ECE 468 - 4sh: Digital Signal Processing
ECE 471 - 3sh: Wireless and Personal Communication Systems
ECE 472 - 4sh: Antennas I
ECE 476 - 4sh: Introduction to Broadband Communication Systems
ECE 477 - 3sh: Fields and Waves I
ECE 478 - 4sh: Analog and Digital Communication
ECE 479 - 4sh: Microwave Engineering I
ECE 483 - 4sh: Power Electronics
ECE 484 - 4sh: Computer-Aided Circuit Analysis
ECE 486 - 3sh: Electric Energy Sources
ECE 487 - 4sh: Power Systems Analysis
ECE 488 - 4sh: Power Systems Engineering
ECE 489 - 3sh: Electric Power Distribution

Engineering (ENGR)
- ENGR 102 - 2sh: Computer-Aided Engineering Drawing
- ENGR 222 - 4sh: Computational Methods for Engineers and Technologists
- ENGR 300 - 3sh: Engineering Thermodynamics
- ENGR 301I - 3sh: Humans and Their Environment
- ENGR 303I - 3sh: The Role of Energy in Society
- ENGR 304I - 3sh: History of American Technology
- ENGR 312 - 3sh: Materials Science Fundamentals
- ENGR 335 - 3sh: Electric Circuits
- ENGR 351 - 3sh: Numerical Methods in Engineering
- ENGR 361 - 2sh: Engineering Economics in Design
- ENGR 400 - 1sh: Engineering Professionalism and Ethics

Engineering Technology (ET)
- ET 103 - 3sh: Engineering Drawing I
- ET 104 - 3sh: Engineering Drawing II
- ET 202 - 3sh: Structural Detailing
- ET 209 - 3sh: Manufacturing Process Laboratory
- ET 236 - 2sh: Electrical Instrumentation
- ET 238 - 4sh: Digital Fundamentals
- ET 245 - 8sh: Electrical Systems for Industry
- ET 260 - 6sh: Principles of Mechanics
- ET 304 - 8sh: Electrical Circuits
- ET 311 - 3sh: Strength of Materials
- ET 312 - 3sh: Materials Fundamentals for Design and Manufacturing
- ET 313 - 3sh: Elementary Heat Power
- ET 314 - 6sh: Soil Mechanics
- ET 315 - 2sh: Elementary Structural Analysis
- ET 317 - 3sh: Fluid Mechanics
- ET 318 - 3sh: Hydraulics and Pneumatics
- ET 321 - 3sh: Instrumentation and Controls
- ET 332 - 8sh: Electromagnetic Principles and Devices
- ET 342 - 2sh: Technology Design
- ET 390 - 3sh: Cost Estimating
- ET 401 - 3sh: Refrigeration and Air Conditioning
- ET 403 - 8sh: Electronics Technology
- ET 404 - 3sh: Machine Design Technology
- ET 408 - 3sh: Instrumentation and Data Acquisition
- ET 416 - 3sh: Design and Manufacturing of Composite Structures
- ET 424 - 6sh: Power Systems Technology
- ET 437 - 8sh: Communications Systems Technology
- ET 438 - 8sh: Continuous and Digital Control Systems
- ET 439 - 4sh: Microprocessor Applications and Hardware
- ET 445 - 3sh: Computer-Aided Manufacturing
- ET 455 - 3sh: Industrial Robotics

Forestry (FOR)

FOR 100 - 1sh: Introduction to Forestry
FOR 201 - 3sh: Ecology of North American Forests
FOR 202 – 2sh: Tree Identification Laboratory
FOR 220 – 2sh: Introduction to Forest Recreation (Applicable from Land Development)
FOR 310 – 4sh: Practices of Silviculture
FOR 310C – 1sh: Silviculture Field Studies
FOR 311 – 3sh: Resources Photogrammetry
FOR 314 – 3sh: Insect, Abiotic and Other Stresses Within a Forest
FOR 314C – 2sh: Forest Protection Field Studies
FOR 315 – 3sh: Fire in Wildland Management
FOR 320C – 1sh: Forest and Wildlands Recreation Field Studies
FOR 331 – 3sh: Forest Ecosystems
FOR 351 – 4sh: Forest Measurements
FOR 351C – 1sh: Forest Resources Measurement Field Studies
FOR 402 – 3sh: Wildland Hydrology
FOR 403 – 3sh: Agroforestry
FOR 405 – 2sh: Forest Management for Wildlife
FOR 408 – 4sh: Introduction to Remote Sensing and Geographic Information Systems
FOR 414 – 3sh: Information Management
FOR 416 – 3sh: Forest Resource Management
FOR 417 – 2sh: Forest Land-Use Planning
FOR 420 – 3sh: Park and Wildlands Management
FOR 421 – 3sh: Recreation Land-Use Planning
FOR 423 – 3sh: Environmental Interpretation
FOR 428 – 2sh: Urban Forestry
FOR 429 – 2sh: Watershed Management Field Laboratory
FOR 430 – Wildland Watershed Management
FOR 431 – 3sh: Regional Silviculture
FOR 451 – 2sh: Natural Resource Inventory
FOR 452 – 2sh: Forest Soils
FOR 452L – 2sh: Forest Soils Laboratory
FOR 453 – 2sh: Environmental Impact Assessment in Forestry

Geography (GEOG)
- GEOG 100 – 3sh: Environmental Conservation
- GEOG 103 – 3sh: World Geography
- GEOG 300I - 3sh: Geography, People and the Environment
- GEOG 303I – 3sh: Environmental Geography
- GEOG 320 – 3sh: Introduction to Environmental Management
- GEOG 361 – 3sh: Regional Geography of the United States
- GEOG 401 – 3sh: Introduction to Geographic Information Systems
- GEOG 404 – 3sh: Spatial Analysis
- GEOG 406 – 3sh: Introduction to Remote Sensing
- GEOG 408 – 3sh: Advanced Remote Sensiing
- GEOG 416 – 3sh: Analytical Cartography
- GEOG 420 – 3sh: Advanced Geographic Information Systems Studies
- GEOG 421 – 3sh: Urban Geography
- GEOG 424 -4sh: Sustainable Development
- GEOG 425 -4sh: Integrated Water Management
- GEOG 428 – 3sh: GIS and Environmental Modeling
- GEOG 430 – 3sh: Environmental Systems Analysis
- GEOG 433 – 4sh: Field Methods in Geography
- GEOG 434 – 4sh: Water Resources Hydrology
- GEOG 458 – 3sh: Analysis of Risk and Bioterrorism Using GIS
- GEOG 471 – 3sh: Environmental Impact Analysis

Geology (GEOL)
- GEOL 111 – 2sh: Geology and the Environment
- GEOL 112 – 1sh: Geology and the Environment Laboratory Learning
- GEOL 220 – 3sh: The Dynamic Earth
- GEOL 221 – 3sh: The Earth Through Time
- GEOL 222 – 3sh: Environmental Geology
- GEOL 223 – 1sh: Introductory Geology Laboratory
- GEOL 224 – 1sh: Earth Through Time Laboratory
- GEOL 302 – 4sh: Fundamentals of Structural Geology
- GEOL 310 – 4sh: Mineralogy
- GEOL 315 – 4sh: Petrology
- GEOL 325 – 4sh: Sedimentology and Stratigraphy
- GEOL 327I – 3sh: The World's Oceans
- GEOL 390 – 3sh: Introduction to Mining Geology
- GEOL 412 – 3sh: Advanced Petrology
- GEOL 413 – 3sh: Quantitative Methods of Geology
- GEOL 414 – 3sh: Paleobotany
- GEOL 415 – 3sh: Optical Mineralogy
- GEOL 417 – 3sh: Isotope Geochemistry
- GEOL 418 – 3sh: Low Temperature Geochemistry
- GEOL 419 – 3sh: Ore Deposits
- GEOL 420 – 3sh: Petroleum Geology

Geology (Con't)
- GEOL 421 – 3sh: Organic Geochemistry
- GEOL 423 – 3sh: Geomicrobiology
- GEOL 425 – 3sh: Invertebrate Paleontology and Paleocology
- GEOL 428 – 3sh: Paleoecology and Environments of Deposition
- GEOL 434 – 3sh: Engineering and Environmental Geophysics
- GEOL 435 – 3sh: Solid-Earth Geophysics
- GEOL 454 – 6sh: Field Geology
- GEOL 460 – 3sh: Geological Data Processing
- GEOL 462 – 3sh: Fundamentals of Structural Geology II
- GEOL 466 – 3sh: Tectonics
- GEOL 470 – 3sh: Hydrogeology
- GEOL 471 – 1sh: Hydrogeology Laboratory
- GEOL 474 – 3sh: Geomorphology
- GEOL 476 – 3sh: Quaternary Geology
- GEOL 478 – 3sh: Advanced Environmental Geology
- GEOL 480 – 3sh: Geology of Coal
- GEOL 481 – 3sh: Sedimentary Basin Analysis
- GEOL 482 – 3sh: Coal Petrology
- GEOL 483 – 3sh: Forensic Geology
- GEOL 484 – 3sh: Geologic Remote Sensing

Industrial Technology (IT) - within College of Engineering, thus Engineering Science
- IT 105 - 3sh: Computer-Aided Drafting
- IT 208 – 3sh: Fundamentals of Manufacturing Processes
- IT 209 – 3sh: Manufacturing Process Laboratory
- IT 270 – 3sh: Computational Methods for Industrial Technologies
- IT 305 – 3sh: Industrial Safety
- IT 307 – 3sh: Applied Calculus for Technology
- IT 320 – 3sh: Surface Mining Operations
- IT 321 – 3sh: Underground Mining
- IT 330 – 1sh: Current Mining Problems
- IT 341 – 3sh: Maintenance
- IT 351 – 3sh: Industrial Metrology
- IT 360 – 3sh: Mine production and Inventory Control
- IT 362 – 3sh: Industrial Packaging
- IT 375 – 3sh: Production and Inventory Control
- IT 382 – 3sh: Motion and Time Study
- IT 386 – 3sh: Total Quality
- IT 390 – 3sh: Cost Estimating
- IT 392 – 3sh: Facilities Planning
- IT 395 – 3sh: Technology Design
- IT 410 – 3sh: Mining Reclamation
- IT 420 – 3sh: Coal Preparation and Analysis
- IT 425 – 3sh: Advanced Process Design and Control

Industrial Technology (IT) (Con't)
- IT 439 - 3sh: Bulk Material Handling
- IT 440 - 3sh: Manufacturing Policy
- IT 441 - 3sh: Mine-Safety Technology
- IT 445 - 3sh: Computer-Aided Manufacturing
- IT 455 - 3sh: Industrial Robotics
- IT 460 - 3sh: Mining Technology
- IT 465 - 3sh: Lean Manufacturing
- IT 475 - 3sh: Quality Control
- IT 485 - 3sh: Quality Control II
- IT 490 - 3sh: Six Sigma

Information Systems Technologies (IST)
- IST 209 - 3sh: Introduction to Programming
- IST 211 - 3sh: COBOL Programming
- IST 232 - 3sh: Systems Analysis & Design Tools
- IST 234 - 3sh: Database Concepts and Applications
- IST 301 - 3sh: Information Systems and Technologies
- IST 307 - 3sh: Principles of Records Information Management
- IST 308 - 3sh: Forms Analysis, Design and Control
- IST 309 - 3sh: Micrographics & Image Management
- IST 310 - 3sh: Archival Management
- IST 312 - 3sh: Programming II
- IST 334 - 3sh: Database Processing
- IST 360 - 3sh: Network Security
- IST 406 - 3sh: Assistive Technologies and Accessible Web Design
- IST 412 - 3sh: Planning, Implementing and Evaluating Information Systems

Mathematics (MATH) * Applied after required 15 semester hours*
- MATH 108 - 3sh: College Algebra
- MATH 108 A,B,C - 3sh: College Algebra
- MATH 109 - 3sh: Trigonometry and Analytic Geometry
- MATH 110 - 3sh: Non-Technical Calculus
- MATH 111 - 4sh: Precalculus
- MATH 113 - 3sh: Introduction to Contemporary Mathmatics
- MATH 114 - 4sh: Algebraic and Arithmetic Systems
- MATH 125 - 4sh: Technical Mathematics with Applications
- MATH 139 - 3sh: Finite Mathematics
- MATH 140 - 4sh: Short Course in Calculus
- MATH 150 - 4sh: Calculus I
- MATH 221 - 3sh: Introduction to Linear Algebra
- MATH 250 - 4sh: Calculus II
- MATH 251 - 3sh: Calculus III
- MATH 282 - 3sh: Introduction to Statistics
- MATH 283 - 3sh: Introduction to Applied Statistics

Mathematics (Con't)
- MATH 305 - 3sh: Introduction to Ordinary Differential Equations I
- MATH 318 - 2sh: An Introduction to Mathematics Software
- MATH 319 - 3sh: Introduction to Abstract Algebra
- MATH 335 - 3sh: Concepts of Geometry
- MATH 349 - 3sh: Introduction to Discrete Mathematics
- MATH 352 - 3sh: Theory of Calculus
- MATH 361 - 3sh: Numerical Calculus
- MATH 380 - 3sh: Elements of Probability
- MATH 405 - 3sh: Intermediate Differential Equations
- MATH 406 - 3sh: Linear Analysis
- MATH 407 - 3sh: Introduction to Partial Differential Equations
- MATH 409 - 3sh: Fourier Analysis
- MATH 417 - 3sh: Applied Matrix Theory
- MATH 418 - 3sh: Computer Algebra Systems
- MATH 419 - 3sh: Introduction to Abstract Algebra II
- MATH 421 - 3sh: Linear Algebra
- MATH 425 - 3sh: Introduction to Number Theory
- MATH 430 - 3sh: Introduction to Topology
- MATH 435 - 3sh: Elementary Differential Geometry
- MATH 447 - 3sh: Introduction to Graph Theory
- MATH 449 - 3sh: Introduction to Combinatorics
- MATH 450 - 3sh: Methods of Advanced Calculus
- MATH 452 - 3sh: Introduction to Analysis
- MATH 455 - 3sh: Complex Analysis with Applications
- MATH 458 - 3sh: Statistical Methods in Business and Industry
- MATH 460 - 3sh: Transformation Geometry
- MATH 471 - 3sh: Optimization Techniques
- MATH 472 - 3sh: Linear Programming
- MATH 473 - 3sh: Reliability and Survival Models
- MATH 475 - 6sh: Numerical Analysis
- MATH 480 - 3sh: Probability, Stochastic Processes and Applications I
- MATH 481 - 3sh: Probability, Stochastic Processes and Applications II
- MATH 483 - 4sh: Mathematical Statistics in Engineering and the Sciences
- MATH 484 - 3sh: Applied Regression Analysis and Experimental Design
- MATH 485 - 3sh: Applied Statistical Methods

Mechanical Engineering and Energy Processes (ME) * Engineering Science*
- ME 101 - 2sh: Introduction to Mechanical Engineering
- ME 261 - 3sh: Mechanical Engineering Dynamics
- ME 301 - 3sh: Engineering Thermodynamics I
- ME 302 - 3sh: Engineering Heat Transfer
- ME 309 - 3sh: Mechanical Analysis and Design
- ME 361 - 1sh: Engineering Economics
- ME 400 - 3sh: Engineering Thermodynamics II

Mechanical Engineering and Energy Processes (Con't)
- ME 401 - 1sh: Thermal Measurements Laboratory
- ME 402 - 3sh: Heat Exchange Equipment Design
- ME 404 - 4sh: Optimization of Process Systems
- ME 405 - 3sh: Internal Combustion Engines and Gas Turbines
- ME 406 - 3sh: Thermal System Design
- ME 407 - 2sh: Mechanical Engineering Measurements and Controls
- ME 408 - 3sh: Energy Conversion Systems
- ME 410 - 3sh: Applied Chemical Thermodynamics and Kinetics
- ME 411 - 2sh: Manufacturing Methods for Engineering Materials
- ME 416 - 3sh: Air Pollution Control
- ME 419 - 3sh: Hazardous Waste Incineration
- ME 422 - 3sh: Applied Fluid Mechanics for Mechanical Engineers
- ME 423 - 3sh: Compressible Flows
- ME 435 - 3sh: Design of Mass Transfer Processes
- ME 436 - 3sh: Mechanical Engineering Control
- ME 440 - 3sh: Heating, Ventilating and Air Conditioning Systems Design
- ME 446 - 3sh; Energy Management
- ME 463 - 3sh: Introduction to Ceramics
- ME 465 - 3sh: Introduction to Nanotechnology
- ME 468 - 3sh: Friction Science and Applications
- ME 470 - 3sh: Mechanical Systems Vibrations
- ME 472 - 3sh: Materials Selection for Design
- ME 475 - 3sh: Machine Design I
- ME 476 - 3sh: Machine Design II
- ME 477 - 3sh: Fundamentals of Computer-Aided Design and Manufacturing
- ME 478 - 3sh: Finite Element Analysis in CAD
- ME 480 - 3sh: Computational Fluid Dynamics

Mining and Mineral Resources Engineering (MNGE) *Engineering Science*
- MNGE 270 - 3sh: Introduction to Mining Engineering
- MNGE 310 - 3sh: Underground Mining
- MNGE 315 - 3sh: Surface Mining
- MNGE 320 - 1sh: Mine Surveying Laboratory
- MNGE 401 - 1sh: Mining Environmental Impacts and Permits
- MNGE 417 - 2sh: Applied Probability and Statistics for Engineers
- MNGE 420 - 4sh: Mineral and Coal Processing
- MNGE 421 - 3sh: Mineral Processing Plant Design
- MNGE 425 - 4sh: Mine Ventilation Systems Analysis and Design
- MNGE 430 - 3sh: Economics of Mineral Resources
- MNGE 431 - 4sh: Rock Mechanics: Principals and Design
- MNGE 435 - 3sh: Application of Operations Research to Mining
- MNGE 440 - 4sh: Material Handling Systems
- MNGE 450 - 3sh: Industrial Minerals
- MNGE 455 - 3sh: Mine Environment, Health and Safety Engineering

Microbiology (MICR)
- MICR 201 - 4sh: Elementary Microbiology
- MICR 301 - 4sh: Principles of Microbiology
- MICR 302 - 3sh: Molecular Biology
- MICR 403 - 3sh: Medical Microbiology Lecture
- MICR 405 - 3sh: Clinical Microbiology
- MICR 421 - 3sh: Biotechnology
- MICR 423 - 3sh: Geomicrobiology
- MICR 425 - 3sh: Biochemistry and Physiology of Microorganisms Lecture
- MICR 453 - 3sh: Innunology Lecture
- MICR 454 - 4sh: Soil Microbiology
- MICR 455 - 2sh: Medical Immunology
- MICR 460 - 3sh: Genetics of Bacteria and Viruses
- MICR 470 - 3sh: Prokaryotic Diversity Lecture
- MICR 480 - 4sh: Molecular Biology of Microorganisms Laboratory
- MICR 481 - 4sh: Diagnostic and Applied Microbiology Laboratory

Physics (PHYS) *Count those hours above the required 8 hours*
- PHYS 101 - 3sh: Physics that Changed the World
- PHYS 102 - 1sh: Everybody's Einstein
- PHYS 103 - 3sh: Astronomy
- PHYS 203 - 6sh: College Physics
- PHYS 205 - 9sh: University Physics
- PHYS 253 - 2sh: College Physics Laboratory
- PHYS 255 - 3sh: University Physics Laboratory
- PHYS 301 - 3sh: Theoretical Methods in Physics
- PHYS 302 - 3sh: Astronomy - Honors
- PHYS 310 - 3sh: Mechanics I
- PHYS 320 - 3sh: Electricity and Magnetism I
- PHYS 328 - 2sh: Light
- PHYS 345 - 3sh: Thermodynamics and Statistical Physics
- PHYS 410 - 3sh: Mechanics II
- PHYS 420 - 3sh: Electricity and Magnetism II
- PHYS 424 - 4sh: Electronics for Scientists
- PHYS 425 - 3sh: Solid State Physics
- PHYS 428 - 3sh: Modern Optics and Lasers
- PHYS 430 - 3sh: Quantum Mechanics I
- PHYS 431 - 3sh: Atomic and Molecular Physics I
- PHYS 432 - 3sh: Nuclear Physics I
- PHYS 445 - 3sh: Statistical Mechanics I
- PHYS 450 - 1sh: Modern Physics Laboratory
- PHYS 458 - 2sh: Laser and Optical Physics Laboratory

Plant and Soil Science (PLSS)
- PLSS 200 - 3sh: Introduction to Crop Science
- PLSS 220 - 4sh: General Horticulture
- PLSS 240 - 4sh: Soil Science
- PLSS 305 - 4sh: Plant Genetics
- PLSS 322 - 3sh: Turfgrass Management
- PLSS 370 - 3sh: Agroecology-Sustainable Agricultural Systems
- PLSS 380 - 4sh: Plant and Soil Evaluations
- PLSS 400 - 2sh: Trends in Agronomy
- PLSS 401 - 2sh: Agricultural Plant Pathology
- PLSS 403A - 2sh: Field Crop Diseases
- PLSS 403B - 2sh: Horticultural Crop Diseases
- PLSS 403C - 1sh: Turfgrass Diseases
- PLSS 403D - 1sh: Tree Diseases
- PLSS 405 - 3sh: Plant Breeding
- PLSS 409 - 3sh: Crop Physiology
- PLSS 419 - 3sh: Plant Molecular Biology
- PLSS 420 - 4sh: Crop Pest Control
- PLSS 421 - 3sh: Turf Management Issues and Strategies
- PLSS 422 - 3sh: Turfgrass Science and Professional Management
- PLSS 423 - 3sh: Greenhouse Management
- PLSS 424 - 4sh: Floriculture
- PLSS 425 - 5sh: Advanced Plant Physiology
- PLSS 426 - 4sh: Genomics and Bioinformatics
- PLSS 427 - 5sh: Plant Biochemistry
- PLSS 428 - 3sh: Advanced Landscape Design I
- PLSS 429 - 3sh: Advanced Landscape Design II
- PLSS 430 - 4sh: Plant Propagation
- PLSS 431 - 4sh: Landscape Construction
- PLSS 455 - 3sh: Biology of Plant-Microbe Interactions

Plant Biology (PLB)
- PLB 115 - 3sh: General Biology
- PLB 117 - 3sh: Plants and Society
- PLB 200 - 4sh: General Plant Biology
- PLB 300 - 4sh: Plant Diversity
- PLB 301I - 3sh: Environmental Issues
- PLB 303I - 3sh: Evolution and Society
- PLB 304 - 4sh: Elements of Plant Systematics
- PLB 320 - 4sh: Elements of Plant Physiology
- PLB 335 - 2sh: Methods of Genetics
- PLB 337 - 2sh: Ecology Laboratory
- PLB 360 - 3sh: Introductory Biostatistics
- PLB 400 - 4sh: Plant Anatomy
- PLB 404 - 4sh: The Algae

Plant Biology (PLB) (Con't)
- PLB 405 - 4sh: The Fungi
- PLB 406 - 3sh: Bryology
- PLB 409 - 3sh: Field Mycology
- PLB 410 - 4sh: Ecology of Bryophytes
- PLB 415 - 5sh: Morphology of Vascular Plants
- PLB 416 - 3sh: Limnology
- PLB 419 - 3sh: Plant Molecular Biology
- PLB 420 - 3sh: Techniques in Molecular Biology
- PLB 421 - 4sh: Botanical Microtechnique
- PLB 425B - 5sh: Advanced Plant Physiology
- PLB 427 - 5sh: Plant Biochemistry
- PLB 430 - 3sh: Economic Botany
- PLB 433 - 4sh: Introduction to Agricultural Biotechnology
- PLB 435 - 3sh: Plant-Insect Interactions
- PLB 439 - 2sh: Natural Areas and Rare and Endangered Species
- PLB 440 - 3sh: Grassland Ecology
- PLB 443 - 3sh: Restoration Ecology
- PLB 444 - 4sh: Quantitative Plant Ecology
- PLB 445 - 5sh: Wetland Plant Ecology
- PLB 449 - 3sh: Plant Systematics and Evolution
- PLB 450 - 2sh: Plant Geography
- PLB 451 - 3sh: Flora of Southern Illinois
- PLB 452 - 4sh: Plant Population Ecology
- PLB 456 - 2sh: Advanced Plant Pathology
- PLB 475 - 3sh: Advanced Cell Biology
- PLB 476 - 2sh: Advanced Cell Biology Laboratory

Zoology (ZOOL)
- ZOOL 115 - 3sh: General Biology
- ZOOL 118 - 4sh: Principles of Animal Biology
- ZOOL 214 - 3sh: Human Heredity
- ZOOL 220 - 6sh: Diversity Animal Life-Invertebrates
- ZOOL 300 - 4sh: Vertebrate Embryology
- ZOOL 304 - 3sh: Evolution
- ZOOL 305 - 2sh: Genetics Laboratory
- ZOOL 306 - 3sh: Fish Biology
- ZOOL 309 - 3sh: Elementary Cell Biology
- ZOOL 312I - 3sh: Conservation of Natural Resources
- ZOOL 351 - 4sh: Ecological Methods
- ZOOL 400 - 3sh: Cell Biology
- ZOOL 401 - 3sh: Developmental Neurobiology
- ZOOL 402 - 3sh: Natural History of Invertebrates
- ZOOL 403 - 3sh: Natural History of Vertebrates
- ZOOL 405 - 3sh: Systematic Zoology

Zoology (ZOOL) (Con't)

ZOOL 407 - 4sh: Parasitology
ZOOL 408 - 3sh: Herpetology
ZOOL 409 - 4sh: Vertebrate Histology
ZOOL 410 - 3sh: Conservation Biology
ZOOL 411 - 3sh: Environmental Risk Assessment
ZOOL 413 - 4sh: The Invertebrates
ZOOL 414 - 4sh: Freshwater Invertebrates
ZOOL 415 - 3sh: Limnology
ZOOL 418 - 5sh: Comparative Vertebrate Anatomy
ZOOL 421 - 4sh: Histological Techniques
ZOOL 426 - 3sh: Comparative Endocrinology
ZOOL 435 - 3sh: Plant-Insect Interaction
ZOOL 458 - 3sh: Issues in Aquatic Ecology
ZOOL 460 - 2sh: Upland Game Birds
ZOOL 461 - 3sh: Mammalogy
ZOOL 462 - 3sh: Waterfowl
ZOOL 463 - 3sh: Game Mammals
ZOOL 464 - 3sh: Wildlife Administration and Policy
ZOOL 465 - 3sh: Ichthyology
ZOOL 466 - 3sh: Fish Management
ZOOL 467 - 3sh: Ornithology
ZOOL 468 - 3sh: Wildlife Biology Principles
ZOOL 469 - 3sh: Wildlife Techniques
ZOOL 470 - 3sh: Interdisciplinary Approaches to Environmental Issues
ZOOL 471 - 4sh: Entomology
ZOOL 473 - 4sh: Aquatic Entomology
ZOOL 475 - 3sh: Advanced Cell Biology
ZOOL 476 - 2sh: Advanced Cell Biology Laboratory
ZOOL 477 - 3sh: Aquaculture
ZOOL 478 - 3sh: Animal Behavior