Ecological & Biological Sciences				
Course Title	**Credits**	**Last Offered**	**Emphasis Area**	**Description**
BIOL 595 Ecology (Required for ALL ESE)	2 (+1 CR lab option)	F18	General Ecology	Ecological processes and dynamics of populations, communities, and ecosystems; physical, physiological, behavioral, and population genetic factors regulating population and community structure; case studies; field studies, and simulation models of life history attributes, competition, predation, parasitism, and mutualism.

Other Courses of Interest (will not meet ESE requirement)				
AGRY 525 Crop Physiology and Ecology	3	S19	Crop Biology	Study of the physiological basis for growth, yield, and adaptation of crop plants. Topics emphasized include: carbohydrate assimilation and partitioning, nitrogen metabolism, crop growth and development, water relations, stress tolerance, and crop improvement using physiological genetics.
BIOL 549 Microbial Ecology	2	S18	Microbial Ecology	A study of microbial interactions with other organisms and the environment. Aquatic and terrestrial ecosystems as well as interactions between nonpathogenic microbes and plants and animals will be discussed. Offered in alternate years.
BIOL 600 Bionenergetics	2	F17	Bioenergy	Energy transduction in biological membranes

EAPS 527/AGRY 598 Ecosystem Ecology/Principles of Terrestrial Ecosystem Ecology	3	F16	Ecosystem Ecology	The objective of this course is to build a conceptual model of terrestrial ecosystems and to provide students with the state-of-the-art mechanisms by which terrestrial ecosystems work. Topics include ecosystem concept, Earth's climate system, geology and soils, terrestrial water and energy balance, terrestrial production processes, terrestrial decomposition, terrestrial plant nutrient use and cycling, biogeochemical pathways, and ecosystem temporal and spatial dynamics.
EEE 595 Urban Ecosystem Services	3	F16		
*FNR 447 Vertebrate Popualtion Dynamics	4	S19	Vertebrate Ecology	Introduction to principles, techniques and tools in vertebrate population dynamics modeling with an emphasis on utilizing mainstream software to perform population characterization and assessments
FNR 536 Ecology of Disturbance	2	S18	Disturbance Ecology	

FNR 543 Conservation Biology I	3	F17	Conservation Biology	Introduction to conservation biology, including population dynamics and genetic structure of rare organisms. Recovery planning, restoration ecology, environmental policy making, and sustainable developments are considered, as is ethics in conservation of biological diversity. Offered in odd-numbered years.
FNR 598 Urban Ecology	3	F18		
HSCI 547 Fundamentals of Epidemiology	3	F18	Epidemiology	The use of epidemiological methods to study the adverse effects of environmental agents on human health. Study designs, association and causation, statistical analysis, bias and confounding, modeling of exposure-response relationships, molecular epidemiology, and investigation of disease outbreaks. The emphasis of the course is on analytical studies, quantitative measures of association, and critical readings of current literature.
HSCI 560 Toxicology	3	F18	Toxicology	(MCMP 560) Introduction to general principles of toxicology, target organ toxicity, and safety evaluation. Covers toxicity of metals, solvents, pesticides, gases, dusts, and food additives.

*Students can have up to 6 credits of 300-400 level courses applied to their plan of study.