Undergraduate Courses With a Prominent Sustainability-Focused Theme

ANT 266	Anthropology of Food	Cross-cultural practices and beliefs about the production, consumption, and distribution of food vary widely. This course examines food in a historical, social, and cultural context, focusing on the topics such as subsistence patterns and cultural patterns of food preparation and consumption; contemporary diets and the increasing prevalence of obesity, diabetes, and heart disease; cultural practices that restrict food intake or dictate food taboos; the globalization and 'McDonaldization' of food; and others. The goal of the course is to provide students with theoretical and methodological tools to analyze food as a symbolic, political, and cultural artifact in today's world.
BIO 441	Environmental Toxicology	The study of the lethal and sublethal effects of chemical contaminants on ecosystems and humans. Topics covered include environmental legislation, chemical distribution and fate in the environment, methods of toxicity testing, assessment of exposure and risk, effects of chemical contaminants on humans, and fish and wildlife populations, communities and ecosystems, and toxicity of specific chemical groups.
BUS 310	Principles of Sustainable Business	This course lays a foundation on the relationships between social, environmental and business systems. Challenges to existing business theory will embrace a new ecological perspective of business that includes an introduction to complexity theory, systems thinking, evolutionary economics and biomimicry. The specific topics of the triple-bottom-line, full-cost accounting, green marketing, human rights and social equity are explored within the context of local and global ecosystems and a broadened mission for 'sustainable' business in the 21st century.
BUS 450	Business Sustainability Capstone	This capstone course will act as a culmination of the Sustainability Minor in Business. By the time students complete this last course in the minor, they will have developed not only a deep exposure to the 'content' of sustainable business, but also a great deal of firsthand experience with the very tools and procedures that breathe factual 'life' into that content, including the triple-bottom-line, full-cost accounting, externalities, and ecological footprint audits. Speakers from and field trips to businesses engaging in sustainability practices will also be a part of this course. Open only to minors in sustainable business.
CHE 200	Public Health for the Educated Citizen	This course introduces the context and scope of public health from historical, modern, and postmodern perspectives. Historical perspective will be used to explain the philosophical foundations, ethics, methods, and essential services that make up public health. Modern perspectives will be used to explain a century of controlling communicable diseases, lengthening lives, and the emergence of new challenges. A postmodern perspective will be used to explore persistent health disparities, social determinants of health, and public health in an era of globalization. Participants will be challenged to consider their role in public health as citizens and/or professionals in a free society.
CHE 440	Program Development in Community Health Education	Community health analysis specific to community health education program development. Individual students develop knowledge of the following program development components: (1) needs, (2) objectives, (3) learning activities, (4) settings, (5) evaluation. Skills are developed in program planning and program implementing. Two hours for in-class activities are complemented by out-of-class program development experience.
ECO 346	Environmental and Ecological Economics	Aspects of the scarcity of renewable and non-renewable natural resources and the management problems associated with their allocation and use are presented from neoclassical and ecological economics perspective. The theoretical foundations for those tools of economic analysis applicable to the analysis of natural resource problems are developed with historical, real-world examples discussed. Attention is concentrated on the policy implications of alternative resource development strategies.
ENV 201	Introduction to Environmental Studies	An interdisciplinary, introductory seminar which will explore current environmental issues from a variety of perspectives (scientific, historical, and social) and disciplines (natural sciences, social sciences, and humanities). Attitudes toward the natural world and approaches to public and private decision-making will also be examined. Some field trips will be used to examine local and regional

		practices and issues.
ENV 301	Environmental Sustainability	What can we do as individuals and as a society to meet our own needs without harming future generations? This seminar course approaches sustainability as a way of asking better questions, drawing from many academic disciplines and practical experiences. Students will discuss environmental sustainability for multiple scales, including personal lifestyles, organizations, businesses, and public infrastructure systems.
ENV 303	Issues in Environmental Studies	This fully interdisciplinary seminar provides the opportunity to gain understanding of the scientific, historical, and ethical issues in ecological literacy and environmental responsibility by focusing on a specific environmental concern. Selected environmental issues with a specific focus will be offered. Examples are forestry, ground water, air pollution, ozone depletion, sustainable agriculture, overpopulation. Each offering will have a specific title according to the topic. Repeatable for credit - maximum 6.
ENV 450	Internship in Environmental Studies	Direct work experience with an agency or organization that deals with environmental issues or problems from an interdisciplinary perspective. The student works under supervision of both faculty adviser and agency staff member. Examples of sites include governmental agencies, advocacy groups, environmental education centers, alternative technologies companies, and environmental compliance divisions of corporations. All internships must be approved in the semester prior to the semester that the internship occurs.
ENV 496	Integrative Seminar in Environmental Studies	This capstone course, offered in seminar style, will focus on research and responsible environmental action. It will discuss, review, and assess course work done in the environmental studies minor. Students will evaluate previous course work and design and conduct research projects or other environmental projects/activities. This seminar will be oriented toward integration of various aspects of the minor, within the context of a bioregional emphasis, a focus on environmental issues on campus, and a component aimed at environmental action. Repeatable for credit - maximum 6.
ENV 499	Independent Study in Environmental Studies	Under supervision of instructor, individualized study in environmental studies on issues/topics not available in existing courses. All independent studies must be approved in the semester prior to the semester that the independent study occurs. Repeatable for credit - maximum 3.
ERS 363	American Indians and the Environment	This course introduces students to American Indian environmental issues. Topics include treaty-based hunting, fishing and gathering rights, air and water quality regulatory authority, environmental racism, toxic and nuclear waste disposal on Indian lands, mining and hydroelectric dams, sacred sites, and Indian vs. Western perceptions of the environment. Special attention will be given to current environmental controversies in Wisconsin Indian country.
ESC 211	Global Warming and Climate Change	This course explores the scientific basis of global warming and climate change, and their current and likely impacts on human society and the environment, before addressing the action that could be taken by governments, by industry, and by individuals to mitigate the effect. Discussion of global warming is situated in the context of models of climate change, focusing on alternative interpretations of the effects of anthropogenic greenhouse gases on global warming.
ESC 460	Environmental Hazards and Land Use	Environmental processes are investigated in light of the hazards they might pose for development and how they may be avoided or mitigated by proper land use planning.
GEO 200	Conservation of Global Environments	Introduction to natural resources, resource management, environmental and land use ethics, environmental impacts of resource utilization and strategies to resolve environmental conflicts. Course examines the relationships between society and the environment from the global to the local scale.
GEO 460	Environmental Hazards and Land Use	Environmental processes are investigated in light of the hazards they might pose for development and how they may be avoided or mitigated by proper land use planning.
HED 335	Human Ecology and Environmental Health	This course examines the interdisciplinary and global effects of human-environment relationships. Emphasis is placed on the critical nature of the relationship between ecosystem health and human health and well-being. Environmental politics and economics, global disease, and traditional

		environmental health topics are considered for the purpose of improving the quality of life for all people through the creation of a sustainable society.
HIS 317	American Environmental History	This course studies human societies and their changing relationships with their physical and natural surroundings. The focus is on the environmental history of North America from pre-Columbian times to the present. Topics explored may include the Columbian exchange, evolving concepts of humanity's relationship to nature, the development of a market economy, science and technology, government roles in conservation and preservation, and the recent emergence of an environmental movement.
HIS 379	African Environmental History	This course examines how African environmental realities and Africans' conceptions of the environment shaped broader political, social and economic histories. It specifically addresses how 19th century economies, colonial policies, and post-independence priorities transformed Africans' relationships with their environments.
HIS 391	History of Environmental Policy in the United States	This course explores the history of environmental issues in the United States by examining several case studies in contemporary policy from a historical perspective. Special emphasis is placed upon the skills of using historical evidence as a component of policy analysis. This course approaches environmental concerns by examining both their history and the political considerations underlying their creation and disposition. We seek to uncover and understand historical foundations and explanations for particularly contentious or intractable debates in environmental politics.
MGT 400	Management Forum	Emphasis will be on examination and study of current management issues. Topics will vary from semester to semester. Specific forum topics with sustainability as a main focus are: Green Operations and System Thinking and Change at Work.
MGT 408	The Global Responsibility of Business	This course considers the turbulent environment in which organizations function and examines specific dimensions of this environment including the evolution of a framework of global human rights, the impacts of economic and social globalization, the convergence of global approaches to sustainability and the changing ideological and political frameworks affecting business. It will also examine matters of global corporate social responsibility and social entrepreneurship.
MKT 351	Sustainability in Marketing	This course addresses ecological issues facing society and modern marketing professionals. Course discussion will include green marketing, environmental responsibility, consumer attitudes and consumption, and providing value to customers via sustainable marketing strategies.
PHL 425	Wilderness Philosophy	The intention of this course is to investigate the many different ways in which wilderness is defined and understood within environmental philosophy. The approach will be broad and will cover a variety of themes. Our desire is both to clarify the positive characteristics of the wilderness idea while also recognizing its significant flaws and hazards. The moral implications of the wilderness concept will be given special attention. A variety of different philosophical perspectives will be utilized.
PSY 302	Environmental Issues: Applied Psychology	This course is an exploration of psychological perspectives on environmental issues. Two trends associated with the relationship between human attitudes and behavior and the natural and built environments will be examined. First, the course will focus on what psychology has to offer in terms of explaining how attitudes and behaviors have contributed to the degradation of the natural environment. Second, it will focus on the synergistic relation between person and planetary well-being characteristic of the "green psychology" movement.
REC 306	Environmental Ethics, Outdoor Recreation and Natural Resources	This course provides an overview of the natural resources used for outdoor recreational pursuits, an analysis of leisure activities dependent upon natural resources, a presentation of the problems of recreational land use and an introduction to environmental awareness and outdoor safety. Recreation and natural resources at the national, state, local and private levels will be addressed with emphasis on the understanding of how outdoor recreation affects and is affected by natural resources.
SOC 328	Environmental Sociology	Environmental Sociology provides a framework for understanding the role of physical-biological factors in shaping social structures and behaviors as well as the impact of social organization and social change on the natural environment. This

		course will focus on the conflicts between the logic of economic growth and the realities of both the global environment and social justice within and between societies.
SOC 363	American Indians and the Environment	This course introduces students to American Indian environmental issues. Topics include treaty-based hunting, fishing and gathering rights, air and water quality regulatory authority, environmental racism, toxic and nuclear waste disposal on Indian lands, mining and hydroelectric dams, sacred sites, and Indian vs. Western perceptions of the environment. Special attention will be given to current environmental controversies in Wisconsin Indian country.
WGS 390	Social Justice Research Methods	This course answers the question that most caring people want answered: How can we fix this problem? Students will engage in the process of strategizing, whatever the issue (gender bias, racism, homophobia, environmental degradation, disability bias), and whatever the setting (a workplace, neighborhood, campus, or beyond). Course activities organize around the processes behind social change: strategic analysis, organizing, action planning, and evaluation, developing students' ability to create the knowledge necessary for complex problem-solving. Students learn and use the quantitative, qualitative, and critical research methods necessary to inform decisions at each step along a generalized pathway to change. Students going on to graduate school and students entering the workforce in a variety of fields like social work, community organizing, communication, and management will benefit from this course.

Undergraduate Sustainability-Related Courses

ANT 101	Human Nature/Human Culture	This course provides an overview of the four subfields of anthropology: physical anthropology, archaeology, cultural anthropology, and linguistic anthropology. The course will focus on how anthropologists seek to understand what it means to be human by examining how people are biologically, culturally, and socially similar and different around the world. We will cover multiple aspects of the human experience, including human evolution and biological diversity, primates and hominids, domestication and subsistence practices, marriage systems, sex and gender norms, religious beliefs, and linguistic diversity.
ANT 102	Introduction to Physical Anthropology	This course introduces the basic fields of physical anthropology: population genetics, human osteology, primatology, pale anthropology, and forensics. The class provides a substantive framework for learning about the biological diversity of the human species through scientific inquiry. The foundations of evolutionary theory and the fossil evidence for human evolution are also presented. Lect. 3, Lab. 2.
ANT 202	Contemporary Global Issues	This course will offer a contemporary multi-disciplinary perspective regarding the major issues and trends confronting the Global Society as it enters the 21st century. Emphasis will be given to a critical review and assessment of the origin and present condition of the plethora of situations and problems affecting modern Global Society. The student will also learn to critically evaluate current and future events. The course will incorporate the views and approaches of the following disciplines: sociology/anthropology, economics, geography, political science and history.
ANT 304	Hunter and Gatherer Societies	This course focuses on recent human societies throughout the world that have lived by hunting and gathering wild resources. The specific subsistence strategies of a wide range of hunter-gatherer groups are examined relative to their technology, social structure, territory, demography and interaction with food producers. The conclusion of this course will consider hunter-gatherers in prehistory.
ANT 305	Indigenous Agricultural Societies: Past & Present	This course examines the origins, structure, social organization, and operation of indigenous agricultural societies. A central focus of the course is an inquiry based, sequential examination of geographically related couplets involving (1) contemporary indigenous agricultural tribal societies and (2) archaeological excavation reports. The utility of the ethnographic record as a guide to interpretation of the archaeological record is evaluated.
ANT 307	International Development and Culture Change	This course provides students with an overview of socio-cultural theories of international development and culture change. The course examines the cultural construction of 'development' as a product of the colonial era, the Cold War, and what has been called the neoliberal global economy. The goal of the course is to provide students with a comprehensive study of the strengths and limitations of contemporary development theory and method in anthropology and sociology, including such topics as conservation and the environment, indigenous peoples, gender and development, and the role of social movements and non-governmental organizations in the developmental process.
ANT 330	Pastoralism: Past and Present	Mobile pastoralism is a way of life centered on the management and herding of livestock. It has had a powerful impact on social and environmental landscapes since originating independently in various forms throughout the world, and tens of millions of people throughout the world still rely on cattle and other domesticated animals for survival today. This course will explore the archaeology and anthropology of pastoralist societies, focusing on the ecological, political, and cultural strategies that made pastoralism dynamic and sustainable throughout prehistory and into the current era. (Cross-listed with ARC/ANT, may only earn credit in one department.)
ANT 353	Maya Civilization	The course presents an overview of the Maya culture located in southern Mexico and Central America. The class is organized chronologically into several sections

		that focus on the origins, adaptations to various environments, social, political, and religious organizations, and the belief systems of the Maya beginning at around 3000 BC. Emphasis will be on Pre-Hispanic Maya; will also explore life ways of contemporary Maya people. (Cross-listed with ANT/ARC/HIS, may only earn credit in one department.)
ANT 360	Peoples and Cultures of Africa	An analysis of cultural impact of catastrophic events in human societies - natural and human-engineered disasters. Various dramatic upheavals will be explored across time and cultures as the class examines human and environmental traumas to which societies must adapt, the cultural interpretations/response which follow, and the manner in which major disasters have redefined and redirected the character and probable future history of each damaged, even endangered society. Study cases will include volcanic and weather cataclysms, plagues and associated population crashes, environmental catastrophes, as well as war, terrorism, and bio-terrorism.
ANT 370	Medical Anthropology	Using international examples, this course provides an overview of concepts and theories in medical anthropology and examines how an individual's interactions with the social and physical environment influence the experience of health and illness. The course focuses on medical anthropology as a subfield of anthropology, discussing specific global health issues such as cultural beliefs and practices of health and healing; complementary and alternative medicine in the U.S.; the effects of race, ethnicity, gender, and class on health status; medicine and power; HIV/AIDS, bioethics and biotechnology; and, the application of medical anthropology in international and domestic settings.
ANT 373	Medical Anthropology	The Sky in Human Cultures examines how ancient peoples analyzed their skies, how they interpreted and applied the results of their observations, and what roles their considerable sky knowledge played in their lives and societies. While the course draws on some modern astronomical observation and calculation, this class relies primarily on anthropology and archaeology to explore the intimate relationships ancient peoples developed with this important feature of their environments.
ARC 195	Archaeology: An Introduction to the Science of Archaeology	An introductory course for archaeology majors. Methods and techniques for the recovery and interpretation of archaeological evidence are examined as well as the role of archaeology in modeling past human behavior and environments. Breakout sessions include exposure to and interpretation of material culture, field and lab methods, use of classification systems, and examination of prehistoric technologies such as stone tools and pottery.
ARC 200	World Archaeology: Origins and Development of Human Culture and Society	A survey course which examines the origin and development of human cultures from earliest Paleolithic times to the great ancient civilizations. An emphasis will be placed on how these evolutionary developments represent changing patterns of human adaptation to the social and natural environment.
ARC 304	Hunter and Gatherer Societies	This course focuses on recent human societies throughout the world that have lived by hunting and gathering wild resources. The specific subsistence strategies of a wide range of hunter-gatherer groups are examined relative to their technology, social structure, territory, demography and interaction with food producers. The conclusion of this course will consider hunter-gatherers in prehistory.
ARC 305	Indigenous Agricultural Societies: Past & Present	This course examines the origins, structure, social organization, and operation of indigenous agricultural societies. A central focus of the course is an inquiry based, sequential examination of geographically related couplets involving (1) contemporary indigenous agricultural tribal societies and (2) archaeological excavation reports. The utility of the ethnographic record as a guide to interpretation of the archaeological record is evaluated.
ARC 330	Pastoralism: Past and Present	Mobile pastoralism is a way of life centered on the management and herding of livestock. It has had a powerful impact on social and environmental landscapes since originating independently in various forms throughout the world, and tens of millions of people throughout the world still rely on cattle and other domesticated animals for survival today. This course will explore the archaeology and anthropology of pastoralist societies, focusing on the ecological, political, and cultural strategies that made pastoralism dynamic and sustainable throughout prehistory and into the current era. (Cross-listed with ARC/ANT, may only earn credit in one department.)

ARC 340	Origins of Cities	This course examines the origins and development of urban life. Students will first explore, from an anthropological perspective, the character of modern cities. Students will next examine the earliest cities in the Old and New Worlds, and comparatively explore the varied ecological, social, political, and demographic processes associated with urbanization in various ancient civilizations (Mesopotamia, Egypt, Indus Valley, China, Andes, and Mesoamerica). While the focus of this course is on archaeological cities, it draws heavily on ethnographic and sociological studies of urban forms. The purpose of this course is to provide students with a comparative understanding and appreciation of urban life and its long history. (Cross-listed with ARC/HIS; may only earn credit in one department.)
ARC 353	Maya Civilization	The course presents an overview of the Maya culture located in southern Mexico and Central America. The class is organized chronologically into several sections that focus on the origins, adaptations to various environments, social, political, and religious organizations, and the belief systems of the Maya beginning at around 3000 BC. Emphasis will be on Pre-Hispanic Maya; will also explore life ways of contemporary Maya people. (Cross-listed with ANT/ARC/HIS, may only earn credit in one department.)
ARC 373	History of Women in the Ancient World	The Sky in Human Cultures examines how ancient peoples analyzed their skies, how they interpreted and applied the results of their observations, and what roles their considerable sky knowledge played in their lives and societies. While the course draws on some modern astronomical observation and calculation, this class relies primarily on anthropology and archaeology to explore the intimate relationships ancient peoples developed with this important feature of their environments.
ARC 404	Environmental Archaeology	This course investigates the relationship between prehistoric human societies and their biotic communities. An array of techniques using plant and animal remains from archaeological contexts to reconstruct aspects of ancient environments, climates, and human subsistence patterns are examined. Applications of environmental data toward the understanding of human settlement and subsistence systems are discussed.
ARC 492	Archaeology Analysis Procedures for Teachers	Taking a hands-on approach to analyzing and interpreting archaeological remains, the class will integrate lectures with demonstrations, experiments, and supervised laboratory projects. Study will focus on the potential for interpreting human life ways and adaptations to the environment from stone tools, ceramics, floral, and faunal remains. Practical application of the interpretation process will be related to the classroom of the precollegiate instructor. Introduction will provide an overview of field procedures.
BIO 102	Contemporary Issues in Biological Sciences	An intra-disciplinary approach to investigating current issues within the biological sciences. Specific topics under the general categories of health, medicine, environment, genetics, and industrial technology will be identified, described and characterized. The science underlying the issue will be explored and the potential impact (past and future) of applied scientific advances within the respective disciplines will be examined in depth. Not applicable to a major or minor in biology.
BIO 103	Introductory Biology	A survey of modern biology. Subjects discussed include ecology, cell biology and genetics. Themes developed through the course are the use of the scientific method and the relationships between society, technology and science. This course is designed as a general education course for non-science or non-allied health majors. Lect. 3, Lab 2.
BIO 105	General Biology	An introduction to biology including topics in ecology, population biology, nutrient cycling, food webs, cell structure and function, metabolism, photosynthesis, reproduction, genetics, molecular biology and evolution. This course provides a strong foundation for further science courses, and is designed for science majors, allied health majors and students with an interest in science. Lect. 3, Lab. 2.
BIO 203	Organismal Biology	A survey of the diverse form and function of prokaryotes, protistans, fungi, plants and animals. Basic ecology, natural history, evolution, biogeography and importance of organisms to humans will be emphasized. Lect. 3, Lab. 3.
BIO 304	Plant Biology	Plant Biology is a phylogenetic survey of the plant-like protists and organisms in

		the plant kingdom beginning with single celled organisms and ending with flowering plants. Innovation of form and function of each major plant group will be discussed along with their anatomy, morphology, taxonomy, ecology, natural history, distribution, medical and economic importance to humans and natural ecosystems. Lect. 2, Lab. 2.
BIO 307	Ecology	A study of interactions that determine the distribution and abundance of living organisms. The basic principles of ecology are presented in order to develop an understanding of the nature of these interactions at the individual, population and community levels of biological organization.
BIO 321	Ornithology	Field identification and ecology of birds with emphasis on Wisconsin forms. Lect. 2, Lab. 3.
BIO 330	Economic Botany	Plants provide humans with food, feed, fuel, fiber, pharmaceuticals, and other economically important products. This course provides an introduction to domesticated plant varieties and wild plant species and their value in human and domestic animal nutrition, and as energy sources, manufactured materials and drugs. Ethnobotanical interests in wild plant species will also be discussed.
BIO 341	Limnology	This course includes fundamentals of aquatic ecology, with special reference to community ecology. Taxonomy, stratification and succession of organisms to be investigated. Energy traffic through aquatic ecosystems will also be investigated. Field trips required. Lect. 2, Lab. 3.
BIO 405	Aquatic and Wetland Vascular Plants	Identification and collection of vascular plants of aquatic and marsh habitats with emphasis on adaptive morphology and ecology of local species. Field trips required. Lect. 1, Lab. 2.
BIO 406	Parasitology	A survey of the major groups of animal parasites with regard to their taxonomy, morphology, life histories, host-parasite relationships, and economic importance. Lect. 2, Lab 4.
BIO 412	Mycology	A survey of all the major groups of fungi of the fungal kingdom (and relatives) in terms of systematics, anatomy, morphology, ecology, physiology, genetics, evolutionary relationships, and human and plant pathology. Laboratory includes microscopic and macroscopic study of the fungi, as well as making a collection of cultures and of fungal reproductive structures (including mushrooms) from selected groups. Lect. 2, Lab 4.
BIO 414	Freshwater Invertebrate Zoology	Introduces the ecology and taxonomy of the metazoan, non–parasitic freshwater invertebrates. An extensive course designed to provide a foundation for taxonomic knowledge, and basic understanding of the biology and ecology of freshwater invertebrates for advanced students in aquatic and environmental sciences. Lectures will focus on ecology; labs on taxonomy and quantitative skills. A student reference collection and field trips will be required. Lect. 2, Lab. 2.
BIO 419	Quantitative Methods in Ecology	An introduction to field and laboratory procedures used by ecologists to describe and analyze the interactions between organisms and their environments. The course will emphasize quantitative techniques, including the use of computer technology, for collecting, recording and interpreting ecological data. Lect. 2, Lab. 2.
BIO 422	Ichthyology	A study of the taxonomy, anatomy, physiology, and ecology of fish, with emphasis on the fresh water fishes. Lect. 2, Lab. 2.
BIO 442	Plant Microbe Interactions	This course will explore in depth various ways that plants interact with microbes in the environment, at the macroscopic, cellular, and molecular levels. Case studies will include both parasitic and mutualistic (symbiotic) interactions. Microbes include fungi, bacteria, nematodes, and viruses. Includes plant pathology and studies of the beneficial relationships between plants and microbes. Inquiry based labs are integrated into the lecture and discussion sessions. Lect. 2, Lab 2.
BIO 447	Standard Methods\Quality Assurance Water Analyses	This course will instruct students on the use of standard methods for analyses of selected biological, chemical, and physical constituents commonly included in water quality analyses. Quality assurance procedures, including Good Laboratory Practice Standards (GLPS) will be integrated into all activities. Materials covered include: principles of methods used; evaluation of precision, bias, and contamination; proper reporting and interpretation of results; and

		environmental sources and significance of constituents analyzed. Lect. 1, Lab 4.
BIO 448	Aquatic Toxicology	A study of the lethal and sublethal effects of chemical contaminants in aquatic systems, specific chemical effects, chemical distribution and fate, and environmental legislation. Procedures for toxicity evaluation, experimental design and statistical analysis will be emphasized in the laboratory. Lect. 3, Lab 2.
BIO 456	Plant Ecology	Conservation biology, ecological restoration, and predicting the effects of climate change all require an understanding of plant ecology. This course is focused on the interactions among plants, other organisms, and the environment. We will work across the individual, population, and community levels, and emphasize an exploratory approach to plant ecology. Class activities will include lectures, the discussion of ecological journal articles, and carrying out student-designed experiments.
BIO 463	Symposium in Biology	The study of pathogens of aquatic animals, including fish, shellfish, crustaceans, amphibians, waterfowl and mammals. Sections on nutrition and toxicology are included. Emphasis is on laboratory techniques for isolation and identification of pathogenic bacteria, viruses and parasites. Field trips required. Lect. 2, Lab 3.
BIO 464	Stream and Watershed Ecology	An introduction to key concepts and theory pertinent to understanding and managing fluvial ecosystems (rivers and streams) and their watersheds. The course emphasizes rivers as large-scale physical and biological systems. Course work includes a comparative case study of distinctive types of temperate, tropical, and polar rivers.
BIO 473	Marine Biology	Marine biology is an interdisciplinary field that includes elements of geology, physics, chemistry and biology. Students will gain an introduction to how biological organisms deal with varying physical, geological and chemical conditions found in marine ecosystems. Emphasis will be placed on current conservation concerns and marine invertebrate diversity.
BIO 476	Ecosystem Ecology	Ecosystems include the living and non-living components of an environmental system and have emergent properties that can only be understood by examining the system as a whole. This course will examine advanced ecological topics centered around the structure and function of aquatic and terrestrial ecosystems. Topics covered will include the development of the ecosystem concept, ecosystem succession, production/decomposition, energy transfer in food webs, and nutrient cycling. The course will consist of classroom lectures, problem sets, and reading/discussion of relevant literature.
BUS 205	The Legal & Ethical Environment of Business	This course introduces students to ethical theory and decision-making models, as well as the legal framework in which American business operates, the substantive legal rules that govern American business domestically and internationally, and the ethical and social responsibility implications of business conduct within the legal environment. Governmental efforts to regulate business activity by statute and administrative agency rules and decisions are emphasized.
CHE 204	Introduction to Global Health	This course introduces participants to global health through its history, definition, determinants, and development as a field of study. The inter-connection between health problems in developed and developing countries and the interdisciplinary approach necessary to understand and address health problems and issues will be emphasized. The participant will develop a basic understanding of the methods used to assess population health, understand the current and future distribution of health, and be able to discuss why some populations are healthier than others and what can be done to reduce health disparities.
CHE 340	Epidemiology and Community Health Problems	A survey and analysis of current public health problems incorporating an epidemiologic framework. A basic introduction to community health history and organization is followed by specific health issues analyzed through the agent, host, and environmental interrelationships. Primary, secondary and tertiary prevention, and health promotion strategies are detailed.
CHM 412	Environmental Chemistry	This course examines the role of chemistry in shaping our environment, including atmospheric, aqueous, and terrestrial components. Students learn how fundamental chemical principles are applied to complex real systems in order to characterize environmental behavior and aid in prediction and decision making. Specific topics explored include climate change, ozone depletion, smog formation, water quality and treatment, energy policy, and the fate/transport of

		pollutants.
CHM 461	Nuclear Chemistry	A study of the decay of radioactive nuclides with emphasis on the theory of nuclear decay. Laboratory will include the study of the detection of radiation, methods of radio analysis and the safe handling of unsealed radioactive sources. Lect. 3, Lab 3.
CI 381	Environmental Education Methods	This course is designed to develop an understanding of curricula, instructional methods and materials and evaluation techniques for K-12 level environmental education based upon educational research, contemporary practices and Wisconsin Department of Public Instruction recommended goals and expectations.
CST 271	Contemporary Media in Everyday Life	This course offers an opportunity to explore contemporary media and their economic, social, political, and cultural implications in everyday life. This course will increase awareness of the motivations of media coverage, media effects on social and cultural change as well as on audience attitudes, the importance of social and cultural issues created or sustained by the media, and the necessity of a critical attitude while consuming media messages.
ECO 110	Microeconomics and Public Policy	Introduction to microeconomic principals and their application to decision-making by individuals, businesses, and government. General topics include supply and demand, market structures, product markets, government regulation, income distribution, international trade, and economic analysis of current social issues.
ECO 120	Global Macroeconomics	Introduction to the functioning of the world economy. Applications of economic principals to domestic and international problems with an introduction to economic systems, economic thought, and economic history around the world. General topics include the economics of international exchange rates, global macroeconomics, international monetary systems, and economic development.
ECO 202	Contemporary Global Issues	This course will offer a contemporary multi-disciplinary perspective regarding the major issues and trends confronting the global society as it enters the 21st century. Emphasis will be given to a critical review and assessment of the origin and present condition of the plethora of situations and problems affecting modern global society. The student will also learn to critically evaluate current and future events. The course will incorporate the views and approaches of the following disciplines: sociology/anthropology, economics, geography, political science and history. (Cross-listed with ANT/ECO/GEO/HIS/POL/SOC 202; may only earn credit in one department.)
EDS 309	Education In a Global Society (Early Adolescence-Adolescence)	In support of teachers as globally responsive citizens, this course studies international education issues relating to global poverty, gender inequality and the impact of globalization on the teaching profession. Comparative case studies regarding education systems in other parts of the world are integrated to provide a stronger global perspective on social, economic and political aspects of schooling.
ENG 334	Language Study for Teachers	Designed for pre-service teachers, this course is intended to provide a theoretical base for structuring effective language education, for teaching writing and other language activities, and for understanding linguistic diversity. It will cover issues basic to understanding how language acquisition is a developmental process and how language functions in thinking, learning, and social interaction.
ENG 445	Literature and Environmental Action	A study of literature of many genres written by nature and environmentalist writers, both traditional and contemporary, all serving as models for students' essays and projects.
ERS 253	Introduction to Wisconsin Indians	An introductory examination of Wisconsin Indians with specific reference to the Ho-Chunk, Menominee, Ojibwa, Oneida, Potawatomi, and the Stockbridge-Munsee communities. An interdisciplinary approach will be used to explore topics including sovereignty, land use and environmental issues, education, economic development, social issues and challenges, and tribal identity. The course also will explore each tribe's responses to both state and federal governments.
ERS 415	Multicultural Counseling	This course focuses on the effects of culture on the nature and behavior of individuals, their adaptations to institutions and environments, and their relations within and outside their culture. Specifically, the impact of concepts

		such as ethnocentrism, stereotypes, racism and prejudice are explored in terms of their relevance to the counseling process. Counseling strategies and skills relevant to providing effective multicultural counseling are investigated.
ERS 442	Racism and Oppression	This course focuses on psychological theory and research regarding individual, group, historical, institutional, and societal causes of racism and oppression. The manifestations and consequences of racism and oppression are examined as are the challenges inherent in reducing racism and oppression. Both historical and contemporary racism and oppression in a global context are analyzed.
ESC 101	Earth Environments	This course concentrates on understanding the earth's dynamic environments through the study of processes and physical and human interactions related to the lithosphere, hydrosphere and atmosphere. A scientific approach is used to examine fundamental concepts in earth and environmental science related to topics such as plate tectonics, landform development, atmospheric processes, global climate, and water resources, in order to provide an understanding of how the earth system functions and the human role in these phenomena. Lect. 3, Lab 2.
ESC 221	Introduction to Climate Systems	An introduction to physical principles and the dynamic processes that govern the behavior of the atmosphere at global and regional scales. Spatial and temporal variations of energy, moisture, circulation, and weather systems; and the patterns of the world climate systems are discussed. Lect. 3; Lab 2.
ESC 222	Landforms: Processes and Regions	An introduction to the earth surface processes that are dominant in forming various types of landforms Spatial variations in landform will be studied both at the local scale and as the outcome of large-scale global processes, including the effects of plate tectonics and global climatic change. Lect. 3, Lab 2.
ESC 345	Remote Sensing	Introduction to remote sensing, emphasizing satellite multispectral observations of the earth applied to such fields as agriculture, forestry, water resources, urban and regional planning, and environmental assessment. Upper Midwest and selected areas worldwide are explored with visual and digital image processing techniques. (Cross listed with ESC/GEO, may only earn credit in one department.)
ESC 385	Introduction to Geographic Information Systems	An introduction to both theoretical and applied aspects of Geographic Information Systems (GIS). GIS software, with an emphasis on ArcGIS, will be used to explore geographic questions. Hands-on exercises pertaining to environmental science, natural resource management, business, and urban planning will be used to complement lecture material. Topics will include data organization, database structure, input and output, data quality, and geographic analysis of spatial and attribute data. (Cross-listed with ESC/GEO; may only earn credit in one department.)
ESC 390	Geographic Field Methods	Covers fundamental concepts of field methods as applied to physical, cultural, urban and environmental geography. Students will gain experience in sampling, field surveying, GPS mapping, and observational data collection techniques. Includes reconnaissance and detailed surveys using current methods, GPS and field equipment; and practical integration of field data into a geographic information system.
ESC 422	Meteorology and Weather Forecasting	Various principles and laws which govern the behavior of the atmosphere are investigated. Laws of gases and radiation, energy exchange between the earth and the atmosphere, laws of motion, various forces governing atmospheric motion, atmospheric moisture and psychrometry, condensation, preciptable water and precipitation, atmospheric stability/instability, thermodynamic characteristics of the atmosphere, vorticity, and synoptic meteorology are discussed. Surface and upper-air charts, synoptic patterns, thermodynamic charts, radar and satellite images, and weather patterns are analyzed for weather forecasting.
ESC 425	Biogeography	A systematic analysis of the geographic distribution of organisms from historical, ecological and regional perspectives. Emphasis is placed on the principles and the methods of biogeography. Special reference is made to bio-geographic regions, the distribution of organisms in space and time, and ecological biogeography.
ESC 426	Soil Morphology and Genesis	A comprehensive study of soils around the world and the factors and processes that drive their formation and dynamic evolution. Emphasis is placed on soil morphology, pedogenesis, and biogeochemical influences within the soil

		environment. A one-credit lab section is devoted to the hands-on exploration and study of soils through laboratory and field exercises.
ESC 427	Water Resources	A study of physical water resources systems and management and utilization of water as a resource. Class activities will include seminars on critical water resource management issues and hands-on analysis of pertinent data, including exercises in Geographic Information Systems.
ESC 430	Fluvial Geomorphology	A systematic study of the interactions between flowing water and surface landforms. Emphasis is placed on watershed and stream development, sediment transport and storage, flow frequency analysis, and applications of fluvial principles to river management and stream restoration. Class activities will include field exercises in the La Crosse region, mathematical analysis of hydrologic variables, and spatial analysis with Geographic Information Systems.
ESC 440	Geographic Interpretation of Aerial Photographs	Systematic applications of aerial photographs in the interpretation and analysis of geographic problems. Emphasis is placed on the interpretation of digital photographs within a geographic information system. Topics include urban and rural land use, natural resource, and environmental assessment. Lect.2, Lab 2.
ESC 445	Advanced Remote Sensing	Advanced techniques of digital satellite and airborne image analysis and processing, emphasizing theory and applications in natural resource, land use and environmental assessment. Includes practical approaches to integrating imagery with geographic information systems for spatial analyses and decision making. Data acquisition, integrity, manipulation, formatting, storage, and retrieval are also examined.
ESS 344	Introduction to Fitness Assessment	The purpose of this course is to review the clinical and diagnostic approach to cardiovascular anatomy, physiology and pathophysiology, and to provide basic knowledge in evaluation, methodology and interpretation of fitness testing. Areas of emphasis will be population characteristics, participant screening and referral process, alternatives of fitness assessment and exercise prescription. Lect. 2, Lab 2.
ESS 368	Strength Training Techniques and Programs	This course is designed to provide the student with a working knowledge of proper lifting and spotting technique, an understanding of the various types of equipment and modes of strength training, basic program design and programming for special populations, and weight training for competition. Students will be taught to design and individualize a strength training program.
ESS 403	Advanced Strength Training Applications and Techniques	This course presents advanced strength training and conditioning theory and practice. Designed primarily for students specializing in strength and conditioning, the course explores advanced periodization models and their utilization, mastery and analysis of Olympic lifts, plyometric programming, ergogenic aids (identification, legal implications, nutritional alternatives,) facility design, and special population needs.
ESS 411	Strength and Conditioning Educator Training	This course is a capstone experience for students specializing in strength and conditioning. Content includes exercise physiology and biomechanics, nutrition and ergogenic aids, testing and evaluation, exercise techniques, program design, and organization and administration of a strength and conditioning facility.
GEO 202	Contemporary Global Issues	This course will offer a contemporary multi-disciplinary perspective regarding the major issues and trends confronting the global society as it enters the 21st century. Emphasis will be given to a critical review and assessment of the origin and present condition of the plethora of situations and problems affecting modern global society. The student will also learn to critically evaluate current and future events. The course will incorporate the views and approaches of the following disciplines: sociology/anthropology, economics, geography, political science, and history. (Cross-listed with ANT/ECO/GEO/HIS/POL/SOC 202; may only earn credit in one department.)
GEO 306	Economic Geography	This course introduces students to the global economic patterns which have shaped and conditioned the world of the 1990s, and the salient economic geography models and approaches which help to explain such patterns. Elements emphasized include the evolution of social and economic organization; the globalization of economic activity since the late 1400s; the interconnectivity of development and underdevelopment; and the relationship between development and social environmental problems.

GEO 318	The Geography of Latin America & the Caribbean	The cultural and physical characteristics of Latin America and the Caribbean region are systematically examined and explained. This includes an examination of diverse physical and 'built' environments that encompass this region, from the borderlands of northern Mexico to the Tierra Del Fuego of the south; from the lush tropical environments of the Amazon, Jamaica, and Puerto Rico, to the Altiplano and arid regions of the west; from disparate lowlands to the startling mountain zones of the Andes. Indigenous civilizations which developed out of unique arrangements with these complex environments as well as those imposed and imported since 1500 will be explored in depth.
GEO 345	Remote Sensing	Introduction to remote sensing, emphasizing satellite multispectral observations of the earth applied to such fields as agriculture, forestry, water resources, urban and regional planning, and environmental assessment. Upper Midwest and selected areas worldwide are explored with visual and digital image processing techniques. (Cross listed with ESC/GEO, may only earn credit in one department.)
GEO 385	Introduction to Geographic Information Systems	An introduction to both theoretical and applied aspects of Geographic Information Systems (GIS). GIS software, with an emphasis on ArcGIS, will be used to explore geographic questions. Hands-on exercises pertaining to environmental science, natural resource management, business, and urban planning will be used to complement lecture material. Topics will include data organization, database structure, input and output, data quality, and geographic analysis of spatial and attribute data. (Cross-listed with ESC/GEO; may only earn credit in one department.)
GEO 390	Geographic Field Methods	Covers fundamental concepts of field methods as applied to physical, cultural, urban and environmental geography. Students will gain experience in sampling, field surveying, GPS mapping, and observational data collection techniques. Includes reconnaissance and detailed surveys using current methods, GPS and field equipment; and practical integration of field data into a geographic information system.
GEO 422	Meteorology and Weather Forecasting	Various principles and laws which govern the behavior of the atmosphere are investigated. Laws of gases and radiation, energy exchange between the earth and the atmosphere, laws of motion, various forces governing atmospheric motion, atmospheric moisture and psychrometry, condensation, preciptable water and precipitation, atmospheric stability/instability, thermodynamic characteristics of the atmosphere, vorticity, and synoptic meteorology are discussed. Surface and upper-air charts, synoptic patterns, thermodynamic charts, radar and satellite images, and weather patterns are analyzed for weather forecasting.
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		rural land use, natural resource, and environmental assessment. Lect.2, Lab 2.
GEO 445	Advanced Remote Sensing	Advanced techniques of digital satellite and airborne image analysis and processing, emphasizing theory and applications in natural resource, land use and environmental assessment. Includes practical approaches to integrating imagery with geographic information systems for spatial analyses and decision making. Data acquisition, integrity, manipulation, formatting, storage, and retrieval are also examined.
HED 201	Social Justice and Peer Education	This course both educates students on social justice issues they face while in college and prepares them to be able to give presentations to peers in residence halls, classrooms, athletic teams, and student organizations with the goal of effecting social change. Subject matter will respond to campus needs. Repeatable for credit - maximum three.
HIS 101	Global Origins of the Modern World	This course explores the origins and development of the modern world, focusing on the dual dynamics of globalization and vital indigenous civilizations. The course will critically examine a minimum of three world civilizations, their ancient antecedents, and will include multiple themes, such as technology and science, religion, gender, war and peace, and the environment.
HIS 102	Global Transition and Change	This course examines world history from the perspective of one specific theme, such as technology and science, religion, gender, cross-culture connections, war and peace, arts and literature, government, or the environment. The course is global in scope, covering a minimum of three world civilizations. Individual sections will trace the development of one theme over the course of major changes in world history, ancient origins to the present. Students will have their choice of sections, thus of themes.
HIS 202	Contemporary Global Issues	This course will offer a contemporary multi-disciplinary perspective regarding the major issues and trends confronting the global society as it enters the 21st century. Emphasis will be given to a critical review and assessment of the origin and present condition of the plethora of situations and problems affecting modern global society. The student will also learn to critically evaluate current and future events. The course will incorporate the views and approaches of the following disciplines: sociology/anthropology, economics, geography, political science, and history. (Cross-listed with ANT/ECO/GEO/HIS/POL/SOC 202; may only earn credit in one department.)
HIS 308	Reforming U.S. Society	An exploration of moral and political reform and the reform impulse in the United States. Reform topics will include women's rights, antislavery, civil rights, temperance, populism, social and economic justice, and progressivism.
HIS 321	Wisconsin History	An exploration of the history of Wisconsin, focusing on place, people, and the development of regional culture. Special emphasis will be given to environment, native peoples, ethnicity, the Progressive transformation of state politics, and community from the territorial period to the recent past.
HIS 340	Origins of Cities	This course examines the origins and development of urban life. Students will first explore, from an anthropological perspective, the character of modern cities. Students will next examine the earliest cities in the Old and New Worlds, and comparatively explore the varied ecological, social, political, and demographic processes associated with urbanization in various ancient civilizations (Mesopotamia, Egypt, Indus Valley, China, Andes, and Mesoamerica). While the focus of this course is on archaeological cities, it draws heavily on ethnographic and sociological studies of urban forms. The purpose of this course is to provide students with a comparative understanding and appreciation of urban life and its long history. (Cross-listed with ARC/HIS; may only earn credit in one department.)
HIS 342	Twentieth Century Latin America	The struggle for economic development, political democracy, and social justice in the period of developing nationalism since World War I. The Non-Hispanic Caribbean is included.
HIS 370	The History of Black Women's Activism	An historical overview of the thoughts, actions, and creative products of black women activists in the United States, from slavery to the present. Students will examine historical analyses, speeches, essays, economic activities, organizational styles, political issues, and various forms of artistic expression that women of African descent have produced in order to query, resist, and defy the interlocking

		oppressions of racism, sexism, and class-ism in the United States.
HIS 378	History of the U.S. West	This course focuses on the history of the Trans-Mississippi West from European contact to the late 20th century, with a focus on the 19th and 20th centuries. Topics covered include the federal West, settlement, immigration, extractive industries, agriculture, aridity, the environment, and Native Americans.
HWM 430	Population Health for Wellness Managers	This course introduces the evolution of health problems and services and will examine the methods designed to capture a community health profile. The participant will apply concepts involved in measuring and understanding the health of individuals and populations in order to enhance quality of life. The key social determinants of health and their interactions will be considered.
MGT 308	Behavior and Theory in Organizations	This course provides an introduction to Organizational Behavior and Theory. Emphasis is on key individual and group level behavioral processes deemed essential for effective management. They include perception, motivation, communication, and group dynamics. In addition, the course covers some basic concepts of organizational theory such as organizational structure and design, organizational culture, and strategy and goals.
MGT 328	Principles of Management Thought	This course focuses on the principles and evolution of 'management' thinking from the advent of the industrial revolution to the present in an increasingly integrated and interconnected world. This course places management thought in a larger political, economic, social and temporal context. It focuses on how management thinking and its accompanying frameworks and practices must evolve and change if it is to make contemporary organizational life creative, effective, and sustainable. (This course should be taken in the first semester of admission to the business program and management major.)
MGT 360	Global Perspective on Business	This course focuses on managing in today's increasingly interconnected world. Special attention is paid to creating and maintaining sustainable business practices across international boundaries, including building socially, economically and environmentally effective organizations in a culturally diverse world.
MGT 393	Production and Operations Management	This introductory course provides business students with the processes of creating and disseminating value in both manufacturing and service operations. The course includes the theoretical foundations for production and operations management, as well as how decision-making techniques aid the manager in creating and delivering value. Global production and distribution strategies are integrated with management processes and projects. Topics include the operation system and processes, the lean and agile enterprise, six sigma, supply chain management and global logistics. Emerging information and manufacturing technologies within the global supply chain are reviewed.
MGT 449	Administrative Policy Determination	An integrated case study approach to the variables in management policy determination at the business strategy level. The course will operationally apply the principles, concepts, and methods of the College of Business Administration core requirements to both actual and simulated case situations. May be taken only in the semester of graduation.
MIC 102	Global Bioterrorism	An overview of current potential biological warfare agents. Topic areas will include an historical overview, an explanation of differences in the classes of biological warfare agents, our preparedness to meet this threat, and counter measures to prevent a biological warfare catastrophe.
MIC 130	Global Impact of Infectious Disease	A multifaceted examination of issues related to infectious disease throughout the world. The course will begin with historical examples of how infectious disease has impacted society, from plagues of centuries past to recent emerging diseases. After defining the types of pathogens and methods for their control, the interplay between infectious disease and global economics, health and politics will be evaluated. Additionally, the impact of public perceptions and misconceptions on the spread of infectious disease will be analyzed. Finally, the role of current human activities in shaping disease patterns of the future will be explored.
MIC 350	Bacterial Diversity	A course is a survey of the bacteria. Lectures will cover bacterial classification and the structure, physiology, ecology, and applications of various groups of bacteria. Special emphasis will be on the more unique species and those of industrial, ecological and environmental importance. The laboratory will involve enrichment

		and isolation procedures for selective groups of bacteria. Lect. 2, Lab 3.
MIC 434	Aquatic Microbial Ecology	An ecological study of bacteria, cyanobacteria and algae of aquatic ecosystems. Topics include microbial strategies for survival under various environmental conditions, the role of micro-organisms in biogeochemical cycling of elements, interactions of microorganisms with other aquatic biota, the role of microorganisms in pollution problems, and applications of microbial ecology to biotechnology. Laboratory emphasis is on experimental design and sampling techniques, quantification of microbial biomass, and measurement of microbial activities in aquatic habitats. One weekend field trip required. Lect. 2, Lab 3.
MIC 442	Plant Microbe Interactions	This course will explore in depth various ways that plants interact with microbes in the environment, at the macroscopic, cellular, and molecular levels. Case studies will include both parasitic and mutualistic (symbiotic) interactions. Microbes include fungi, bacteria, nematodes, and viruses. Includes plant pathology and studies of the beneficial relationships between plants and microbes. Inquiry based labs are integrated into the lecture and discussion sessions. Lect. 2, Lab 2.
MKT 479	Marketing Management	The analysis, planning, implementation and control of marketing programs designed to bring about desired exchanges with target markets within organizational objectives.
MLG 335	Service Learning in Latin America	This course seeks to prepare students for a service learning trip to Latin America. The course explores issues such as racism and the African Diaspora in Latin America, ethnic and racial groups and their participation in Latin American societies, types and systems of oppression, social justice, and the effects of globalization on the environment. Students will also learn practical Spanish to use while working on projects with community partners.
MTH 265	Mathematical Models in Biology	An introduction to the use of calculus and stochastic based models to the biological sciences. Mathematical tools such as discrete and continuous differential equations, linear algebra, phase portraits, probability theory and descriptive and inferential statistics that are necessary to analyze and interpret biological models will be covered. Biological topics may include single species and interacting population dynamics, modeling infectious diseases, enzyme kinetics, and quantitative genetics.
MTH 353	Differential Equations	Fundamental existence and uniqueness theory, linear independence and the Wronskian, series solutions near regular singular points, Laplace transforms and systems of first order linear equations. Fourier Series and the method of separations of variables will be applied to the heat equation, wave equation and Laplace's equation.
NUT 200	Human Nutrition	Examination of the basic principles of the science of nutrition including understanding the basic sources of energy and the influences and effects of nutrition on one's overall health and fitness. Cultural and environmental factors that influence food availability and consumption will also be investigated.
NUT 350	Functional Foods, Herbs, and Supplements	Consumer interest in the relationship between diet and health has increased the demand for information about functional foods, herbals, and supplements. The purpose of this course is to explore current literature and research in these ever-growing and popular topics. Definitions, purpose, safety, efficacy, and risks of each topic will be covered. Additionally, topics of discussion will include specific functional components of food, herbals, and supplements.
NUT 400	Food Science and Safety	This course examines the principles of food science including the functional role of carbohydrates, protein and fat. Emphasis will be placed on current topics of food science and safety in the national and local food industry including genetically modified and functional foods. Biological, chemical, and physical factors that affect the safety of food products will be discussed in addition to the role of microorganisms in foodborne illness and food quality. Students in this course will also explore basic principles of food safety including food processing and food service as well as the role of government in food safety.
PHL 100	Introduction to Philosophy	An introduction to the major views on important philosophic topics such as personal identity, freedom, knowledge, morality, religion, and social justice. Students cannot earn credit for the philosophy major/minor in both PHL 100 and PHL 200.

PHL 330	Philosophy of Food: The Dining Experience	Philosophy of Food explores the aesthetic, ethical and existential features of the dining experience. Beginning with the pleasure features of food it moves to discussion on the relation of the disgusting and delicious, of the role of taste and food taboo, the proper relation of food and beauty, the question of whether food can constitute art, the relation of food and the sexual, and the role of the aesthetic in unpacking ethical evaluation of food choices. Phenomenological accounts are provided of the experiences of eating disorders and models of thinness and obesity. Next it looks at the metaphysics and epistemology of establishing criteria for nutritional value, the ideology of nutritionism, analysis of function foods, the defenses/critiques of genetically modified organisms (GMO) and so-called Frankenfoods. Further it investigates ethical discourse on eating behavior, ethical arguments for vegetarianism, veganism, carnism and omnivorism , and gendered accounts of proper eating behavior. Lastly, philosophical arguments about appropriate ethical responses to world hunger are evaluated as well as development of arguments about the proper role of being a world food citizen.
PHL 336	International Multicultural Philosophy	This survey course will examine philosophical ideas and systems that are generated from a wide range of cultural traditions world wide. The aim of this search will be to broaden and deepen our understanding and appreciation of the multiplicity of philosophical perspectives which are part of an increasingly diverse, interconnected, and globalized world.
PHL 337	Legal, Political, and Social Philosophy	An examination of philosophical issues concerning legal, political, and social structures. A discussion of philosophical accounts of the nature and justification of law and the state, of the relation of morality and the law, of the relation of morality and the state, and of the nature of legal-political obligation and responsibility. Philosophical accounts of justice, liberty, rights, and obligation and the relation of these topics to contemporary legal, political and social problems will be covered.
PHL 341	Environmental Ethics	Philosophical reflections on humanity's relationship to the natural world. The course will examine classic American perspectives (e.g. Leopold, transcendentalists), Asian perspectives, Native American perspectives, and contemporary environmental philosophies such as social ecology, deep ecology, and ecofeminism. Course discussions will include the historical roots of the contemporary environmental crisis, the development of a personal environmental philosophy, and the role of a citizen in advancing environmental awareness and responsible land and water use.
PHL 401	World Ethics	An investigation of major ethical problems facing the world as a whole from an international perspective, including world medicine, international economic relations, world environmental ethics, international individual rights issues, world diversity concerns, and international conflict and cooperation.
PHY 142	Navigating Global Nuclear Issues	This course will serve as an introduction to the topic of nuclear weapons, energy and policy in society. This includes the social, economic, cultural and political aspects surrounding the development of nuclear weapons and their place in the world, especially in current events. International organizations will be discussed along with their role in regulation and recommending economic sanctions. We will look at the resurgence of nuclear energy and how it affects everything from the environment to global trade. Finally, the role of terrorism and the impact this has on shaping the human experience will be explored.
POL 202	Contemporary Global Issues	This course offers a contemporary multi-disciplinary perspective regarding the major issues and trends confronting the global society in the 21st century. Emphasis will be given to a critical review and assessment of the origin and present condition of the plethora of situations and problems affecting modern global society. The student will also learn to critically evaluate current and future events. The course will incorporate the views and approaches of the following disciplines: sociology/anthropology, economics, geography, political science, and history. (Cross-listed with ANT/ECO/GEO/HIS/POL/SOC 202; may only earn credit in one department.)
POL 318	Interest Group Politics	An in-depth exploration of environmental politics and policy making beginning with American environmentalism in the 1960s and concluding with global environmental politics in the 21st century. Environmental issues, ethics, institutional problems, philosophical approaches, economic analyses and

		implementation problems will be studied.
PSY 282	Cross-Cultural Psychology	An orientation to the definitions, concepts, theories, and methodologies of cross-cultural psychology. Included is an examination of cultural and ecological factors and their influences on perceptual and cognitive processes, personality, language, and other psychological variables.
PSY 415	Multicultural Counseling	This course focuses on the effects of culture on the nature and behavior of individuals, their adaptations to institutions and environments, and their relations within and outside their culture. Specifically, the impact of concepts such as ethnocentrism, stereotypes, racism and prejudice are explored in terms of their relevance to the counseling process. Counseling strategies and skills relevant to providing effective multicultural counseling are investigated.
PSY 442	Racism and Oppression	This course focuses on psychological theory and research regarding individual, group, historical, institutional, and societal causes of racism and oppression. The manifestations and consequences of racism and oppression are examined as are the challenges inherent in reducing racism and oppression. Both historical and contemporary racism and oppression in a global context are analyzed.
REC 202	Leisure, Nature, and Contemplative Experiences	This course utilizes natural environments as a venue for experientially teaching Recreation Management students the role of leisure in a complete and balanced lifestyle. Weekend field trips will be required.
REC 320	Principles and Practices of Tourism	An introduction to the nature and scope of tourism that is intimately related to recreation. This course provides a basic understanding of tourism from the tourism system perspective. The topics include tourist behavior, special-interest tourism, destination marketing, economic, social-cultural, and environmental impacts of tourism on a destination, and sustainable tourism development. In addition to the business and economic benefits of tourism, it also examines the social aspects of tourism.
REC 400	Planning for Park and Recreation Facilities	Designed to equip the student with the basic knowledge necessary to understand and implement the planning process in the development of park and recreation facilities. This course is also designed to familiarize the student with federal, state and local statutes, and other related documents (U.S. Census, Wisconsin Administrative Codes, county and municipal ordinances).
RTH 250	Introduction to Therapeutic Recreation	This course is designed as an introduction to the history and foundations of therapeutic recreation. Models of health care/human services and therapeutic recreation are presented. Students will gain knowledge of services and settings; professional, legal and community resources; professional and ethical behavior.
RTH 325	Inclusive Recreation	This course is designed to provide the student with information regarding the general techniques and guidelines for planning and implementing recreational activities for persons with disabilities in non-institutional settings. The course will present general background, characteristics of disabling conditions, legislation, and program adaptations.
RTH 462	Inclusive Recreation Program Administration	This course is designed to provide the student with information relating to recreation in inclusive settings. General Administration concepts, management concepts, advocacy, legislation, and therapeutic recreation as a related service in the schools will receive special emphasis in this course.
SOC 202	Contemporary Global Issues	This course will offer a contemporary multi-disciplinary perspective regarding the major issues and trends confronting the Global Society as it enters the 21st century. Emphasis will be given to a critical review and assessment of the origin and present condition of the plethora of situations and problems affecting modern Global Society. The student will also learn to critically evaluate current and future events. The course will incorporate the views and approaches of the following disciplines: sociology/anthropology, economics, geography, political science and history.
SOC 307	International Development and Culture Change	This course provides students with an overview of socio-cultural theories of international development and culture change. The course examines the cultural construction of 'development' as a product of the colonial era, the Cold War, and what has been called the neoliberal global economy. The goal of the course is to provide students with a comprehensive study of the strengths and limitations of contemporary development theory and method in anthropology and sociology, including such topics as conservation and the environment, indigenous peoples,

		gender and development, and the role of social movements and non-governmental organizations in the developmental process.
SOC 337	Globalization, Women, and Work	This course examines the global and often exploitative experiences of women, migrating from one part of the world to another for work. As women leave their countries of origin, many find themselves working as nannies, sex workers, house cleaners and modern-day slaves in sweatshops. These work environments often create vulnerability, discrimination, and abuse of women within the private and public institutions of their host countries. The course will also use in-depth personal narratives and a focus on grassroots social movements to witness how women resist workplace policies and domestic laws to campaign for their rights, despite cultural and political constraints.
SOC 360	Peoples and Cultures of Latin America	An analysis of cultural impact of catastrophic events in human societies - natural and human-engineered disasters. Various dramatic upheavals will be explored across time and cultures as the class examines human and environmental traumas to which societies must adapt, the cultural interpretations/response which follow, and the manner in which major disasters have redefined and redirected the character and probable future history of each damaged, even endangered society. Study cases will include volcanic and weather cataclysms, plagues and associated population crashes, environmental catastrophes, as well as war, terrorism, and bio-terrorism.
SOC 404	Global Inequality	This course explores explanations for inequality between countries. Macro-sociological theories and comparative methods are used to analyze cross-cultural and cross-national differences and similarities in basic institutions, including family, education, and political economy. The main course objective is that students develop an understanding of the consequences of living in a world of global inequality.
THA 231	Stagecraft	Theory and practice of scenic construction. A study of the stage and its equipment; the planning, building and painting of scenery and the practical aspects of stage lighting.
WGS 100	Gender, Race and Class in American Institutions (ES)	This course provides an introduction to how gender, race and class have intertwined over time to produce women's social roles and status in American culture. The creation, transmittal, interpretation and institutionalization of gender roles will be examined using family and kinship, the educational system, the media, work, government and the health care system. The course provides a critical, interdisciplinary perspective on scholarship which omits or distorts the female experience.
WGS 201	Social Justice and Peer Education	This course both educates students on social justice issues they face while in college and prepares them to be able to give presentations to peers in residence halls, classrooms, athletic teams, and student organizations with the goal of effecting social change. Subject matter will respond to campus needs. Repeatable for credit - maximum three.
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WGS 370	The History of Black Women's Activism	An historical overview of the thoughts, actions, and creative products of black women activists in the United States, from slavery to the present. Students will examine historical analyses, speeches, essays, economic activities, organizational styles, political issues, and various forms of artistic expression that women of African descent have produced in order to query, resist, and defy the interlocking oppressions of racism, sexism, and class-ism in the United States.
WGS 373	Gender and Human Rights	Gender and Human Rights

Graduate Courses With a Prominent Sustainability-Focused Theme

BIO 541	Environmental Toxicology	The study of the lethal and sublethal effects of chemical contaminants on ecosystems and humans. Topics covered include environmental legislation, chemical distribution and fate in the environment, methods of toxicity testing, assessment of exposure and risk, effects of chemical contaminants on humans, and fish and wildlife populations, communities and ecosystems, and toxicity of specific chemical groups. Prerequisite: BIO 307 or 341; CHM 104.
BUS 750	Managing in an Environmental and Socially Conscious World	This course analyzes business decisions in the context of environmental, human rights, and social responsibility issues. The course provides an open, balanced, and interdisciplinary approach that examines the complex social, environmental, and human rights issues central to the conscientious management of business organizations. The course will examine these issues in business decision situations, explore solutions from alternative paradigms of corporate governance and incorporate them when formulating organizational tactics and strategy.
CHM 512	Environmental Chemistry	This course examines the role of chemistry in shaping our environment, including atmospheric, aqueous, and terrestrial components. Students learn how fundamental chemical principles are applied to complex real systems in order to characterize environmental behavior and aid in prediction and decision making. Specific topics explored include climate change, ozone depletion, smog formation, water quality and treatment, energy policy, and the fate/transport of pollutants. Prerequisite: CHM 301.
ESC 560	Environmental Hazards and Land Use Planning	Environmental processes are investigated in light of the hazards they might pose for development and how they may be avoided or mitigated by proper land use planning. Prerequisite: ESC 221 or ESC 222. (Cross-listed with ESC/GEO; may only earn credit in one department.)
GEO 560	Environmental Hazards and Land Use Planning	Environmental processes are investigated in light of the hazards they might pose for development and how they may be avoided or mitigated by proper land use planning. Prerequisite: ESC 221 or ESC 222. (Cross-listed with ESC/GEO; may only earn credit in one department.)
MGT 736	The Global Environment of Business	This course focuses on current changes in the global environment with which U.S. corporations and managers interact. Emphasis is placed on understanding contemporary changes in the global environment. Contemporary and current changes are examined from a managerial and business perspective that focuses on the inter-dependence of the U.S. and other countries and trading blocs in the global environment of business.
MIC 730	Biodegradation and Bioremediation of Environmental Contaminants	Microbes are able to breakdown, or biodegrade, a wide variety of compounds including some considered hazardous to human health and/or the environment. The use of microbes as biological agents to reclaim polluted soils and waters is called bioremediation. This course will explore some of the better-studied mechanisms used by microbes to degrade and detoxify contaminants. Practical aspects for the use of microbes in bioremediation and some specific examples will also be covered. In addition, the students will present and discuss a series of special topics such as nuclear waste bioremediation or current clean-up efforts in the news. Prerequisite: one semester organic chemistry; MIC 230 or equivalent microbiology course.
PH 707	Environmental Health	Examination of how environmental mechanisms influence human health and how humans impact environmental conditions. A critical analysis of current environmental problems and evidence linking these problems to disease causation and health enhancement. Solutions to environmental health problems will also be critically analyzed.
REC 740	Outdoor Education	A study of the philosophy, resources, skills, methods and activities associated with the natural environment as a laboratory for the achievement of some of the purposes and objectives of education. The focus of the course is on direct participation and leadership situations in the out-of-doors. Repeatable for credit — maximum four.
BIO 541	Environmental Toxicology	The study of the lethal and sublethal effects of chemical contaminants on ecosystems and humans. Topics covered include environmental legislation,

		chemical distribution and fate in the environment, methods of toxicity testing, assessment of exposure and risk, effects of chemical contaminants on humans, and fish and wildlife populations, communities and ecosystems, and toxicity of specific chemical groups. Prerequisite: BIO 307 or 341; CHM 104.
BUS 750	Managing in an Environmental and Socially Conscious World	This course analyzes business decisions in the context of environmental, human rights, and social responsibility issues. The course provides an open, balanced, and interdisciplinary approach that examines the complex social, environmental, and human rights issues central to the conscientious management of business organizations. The course will examine these issues in business decision situations, explore solutions from alternative paradigms of corporate governance and incorporate them when formulating organizational tactics and strategy.
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Graduate Sustainability-Related Courses

ARC 592	Archaeology Analysis Procedures for Teachers	Taking a hands-on approach to analyzing and interpreting archaeological remains, the class will integrate lectures with demonstrations, experiments, and supervised laboratory projects. Study will focus on the potential for interpreting human lifeways and adaptations to the laboratory environment from stone tools, ceramics, floral, and faunal remains. Practical application of the interpretation process will be related to the classroom of the pre-collegiate instructor. Introduction will provide an overview of field procedures. Prerequisite: ARC 490/590 or ARC 493/593.
BIO 505	Aquatic and Wetland Vascular Plants	Identification and collection of vascular plants of aquatic and marsh habitats with emphasis on adaptive morphology and ecology of local species. Field trips required. Lect. 1, Lab. 2. Prerequisite: BIO 203 or 204.
BIO 506	Parasitology	A survey of the major groups of animal parasites with regard to their taxonomy, morphology, life histories, host-parasite relationships, and economic importance. Lect. 2, Lab 4. Prerequisite: BIO 203 or 210 or 303.
BIO 512	Mycology	A survey of all the major groups of fungi of the fungal kingdom (and relatives) in terms of systematics, anatomy, morphology, ecology, physiology, genetics, evolutionary relationships, and human and plant pathology. Laboratory includes microscopic and macroscopic study of the fungi, as well as making a collection of cultures and of fungal reproductive structures (including mushrooms) from selected groups. Lect. 2, Lab. 4. Prerequisite: BIO 203 or 204 or MIC 230. Both are strongly recommended.
BIO 514	Freshwater Invertebrate Zoology	Introduces the ecology and taxonomy of the metazoan, non-parasitic freshwater invertebrates. An extensive course designed to provide a foundation for taxonomic knowledge, and basic understanding of the biology and ecology of freshwater invertebrates for advanced students in aquatic and environmental sciences. Lectures will focus on ecology; labs on taxonomy and quantitative skills. A student reference collection and weekend field trips will be required. Lect. 2, Lab. 2. Prerequisite: BIO 203 or 210 or 341.
BIO 519	Quantitative Methods in Ecology	An introduction to field and laboratory procedures used by ecologists to describe and analyze the interactions between organisms and their environments. The course will emphasize quantitative techniques, including the use of computer technology, for collecting, recording and interpreting ecological data. Lect. 2, Lab. 2. Prerequisite: BIO 307 or 341.
BIO 522	Ichthyology	A study of the taxonomy, anatomy, physiology, and ecology of fish, with emphasis on the fresh water fishes. Lect. 2, Lab. 2. Prerequisite: BIO 203 or 210 or 303.
BIO 542	Plant Microbe Interactions	This course will explore in-depth various ways that plants interact with microbes in the environment, at the macroscopic, cellular, and molecular levels. Case studies will include both parasitic and mutualistic (symbiotic) interactions. Microbes include fungi, bacteria, nematodes, and viruses. Includes plant pathology and studies of the beneficial relationships between plants and microbes. Inquiry-based labs are integrated into the lecture and discussion sessions. Lect. 2, Lab 2. Prerequisite: BIO 203 or BIO 204, MIC 230 and BIO 306 or MIC 416. (Cross-listed with BIO/MIC; may only earn credit in one department.)
BIO 547	Standard Methods/Quality Assurance Water Analyses	This course will instruct students on the use of standard methods for analyses of selected biological, chemical, and physical constituents commonly included in water quality analyses. Quality assurance procedures, including Good Laboratory Practice Standards (GLPS) will be integrated into all activities. Materials covered include: principles of methods used; evaluation of precision, bias, and contamination; proper reporting and interpretation of results; and environmental sources and significance of constituents analyzed. Lect. 1, Lab 4. Prerequisite: BIO 203 or 204 or 210 or 303, and 3 semesters of college chemistry. BIO 341 recommended.
BIO 548	Aquatic Toxicology	A study of the lethal and sub lethal effects of chemical contaminants in aquatic systems, specific chemical effects, chemical distribution and fate, and environmental legislation. Procedures for toxicity evaluation, experimental

		design and statistical analysis will be emphasized in the laboratory. Lect. 3, Lab. 2. Prerequisite: four semesters of college biology, BIO 341 recommended, and three semesters of college chemistry.
BIO 556	Plant Ecology	Conservation biology, ecological restoration, and predicting the effects of climate change all require an understanding of plant ecology. This course is focused on the interactions among plants, other organisms, and the environment. We will work across the individual, population, and community levels, and emphasize an exploratory approach to plant ecology. Class activities will include lectures, the discussion of ecological journal articles, and carrying out student-designed experiments.
BIO 563	Aquatic Animal Health	The study of pathogens of aquatic animals, including fish, shellfish, crustaceans, amphibians, waterfowl and mammals. Sections on nutrition and toxicology are included. Emphasis is on laboratory techniques for isolation and identification of pathogenic bacteria, viruses and parasites. Field trips required. Lect. 2, Lab. 3. Prerequisite: BIO 103 or 105, 203 or 210 or 303, and CHM 103; MIC 230 strongly recommended.
BIO 564	Stream and Watershed Ecology	Introduces key concepts and theory pertinent to understanding and managing fluvial ecosystems (rivers and streams) and their watersheds. The course will emphasize rivers as large-scale physical and biological systems. Course work includes a comparative case study of distinctive types of temperate, tropical, and polar rivers. Prerequisite: BIO 341 or BIO 307.
BIO 573	Marine Biology	Marine biology is an interdisciplinary field that includes elements of geology, physics, chemistry and biology. Students will gain an introduction to how biological organisms deal with varying physical, geological and chemical conditions found in marine ecosystems. Emphasis will be placed on current conservation concerns and marine invertebrate diversity.
BIO 576	Ecosystem Ecology	Ecosystems include the living and non-living components of an environmental system and have emergent properties that can only be understood by examining the system as a whole. This course will examine advanced ecological topics centered around the structure and function of aquatic and terrestrial ecosystems. Topics covered will include the development of the ecosystem concept, ecosystem succession, production/decomposition, energy transfer in food webs, and nutrient cycling. The course will consist of classroom lectures, problem sets, and reading/discussion of relevant literature.
BUS 760	Managing in a Global Environment	This course develops the critical skills and integrated knowledge necessary to function effectively in today's global environment. The course describes how global agreements, changing technologies, global institutions and evolving political patterns affect the conduct of global business. This course develops the ability to frame problems from multiple managerial perspectives — including operational, economic, environmental, ethical, financial, cultural, and technological frames of reference — and to apply sophisticated decision making and coalition building processes to arrive at integrated solutions in a diverse and changing world. This course will typically employ a problem-based approach to the subject area and will seek to integrate, in this approach, such traditional functional disciplines as operations, logistics, marketing, finance, accounting, information systems, and management. This course is offered as a campus course and an Internet course.
CI 581	Environmental Education Methods	This course is designed to develop an under-standing of curricula, instructional methods and materials and evaluation techniques for K-12 level environmental education based upon educational research, contemporary practices and Wisconsin Department of Public Instruction recommended goals and expectations. Prerequisite: GEO 200 and EDS 351 or EDS 402 .
ECO 740	Macroeconomic Policies in Global Economy	A detailed examination of the fundamentals of international monetary economics and macroeconomic policies. Currency markets and exchange rates, the balance of payments accounts, the market for goods and services, and money and the banking system in relation to foreign exchange will be discussed. Short-run and long-run macroeconomic policies under fixed and flexible exchange rates, and their impact on interest rates, prices, and output are emphasized. Prerequisite: not open for credit to students who have completed ECO 441/541.

EDU 651	Democracy, Diversity and Social Justice in Education I: Introduction	In this first course of four, students will be introduced to the concepts of democracy, diversity, and social justice in education. Coursework requirements include application to the workplace setting and communication via technology. The key concepts of this course include: diversity issues, privilege and power, language and communication, and democracy.
EDU 652	Democracy, Diversity and Social Justice in Education II: Exploration	In this second course of four, students will explore the concepts of democracy, diversity, and social justice in education. Coursework requirements include application to the workplace setting and communication via technology. The key concepts of this course include: diversity issues, harassment and bullying, and democracy in schools.
EDU 753	Democracy, Diversity and Social Justice in Education III: Integration	In this third course of four, students will integrate democracy, diversity, and social justice in education. Coursework requirements include application to the workplace setting and communication via technology. The key concepts of this course include: diversity issues and democracy in the classroom.
EDU 754	Democracy, Diversity and Social Justice in Education IV: Action	In this fourth course of four, students will take action with regard to democracy, diversity, and social justice in education. Coursework requirements include application to the workplace setting and communication via technology. They key concepts of this course include: current social justice issues and educational policy.
ESC 522	Meteorology and Weather Forecasting	Various principles and laws which govern the behavior of the atmosphere are investigated. Laws of gases and radiation, energy exchange between the earth and the atmosphere, laws of motion, various forces governing atmospheric motion, atmospheric moisture and psychrometry, condensation, preciptable water and precipitation, atmospheric stability/instability, thermodynamic characteristics of the atmosphere, vorticity, and synoptic meteorology are discussed. Surface and upper-air charts, synoptic patterns, thermodynamic charts, radar and satellite images, and weather patterns are analyzed for weather forecasting. Prerequisite: ESC 101 or equivalent. (Cross-listed with ESC/GEO; may only earn credit in one department.)
ESC 525	Biogeography	A systematic analysis of the geographic distribution of organisms from historical, ecological and regional perspectives. Emphasis is placed on the principles and the methods of biogeography. Special reference is made to biogeographic regions, the distribution of organisms in space and time, and ecological biogeography. Prerequisite: ESC 221. (Cross-listed with ESC/GEO; may only earn credit in one department.)
ESC 526	Soil Morphology and Genesis	A comprehensive study of soils around the world and the factors and processes that drive their formation and dynamic evolution. Emphasis is placed on soil morphology, pedogenesis, and biogeochemical influences within the soil environment. A one-credit lab section is devoted to the hands-on exploration and study of soils through laboratory and field exercises. Prerequisite: ESC 221 or ESC 222. (Cross-listed with ESC/GEO; may only earn credit in one department.)
ESC 530	Fluvial Geomorphology	A systematic study of the interactions between flowing water and surface landforms. Emphasis is placed on watershed and stream development, sediment transport and storage, flow frequency analysis, and applications of fluvial principles to river management and stream restoration. Class activities will include field exercises in the La Crosse region, mathematical analysis of hydrologic variables, and spatial analysis with Geographic Information Systems. Prerequisite: ESC 221 or ESC 222. (Cross-listed with ESC/GEO, may only earn credit in one department.)
ESC 540	Geographic Interpretation of Aerial Photographs	Systematic applications of aerial photographs in the interpretation and analysis of geographic problems. Emphasis is placed on digital photograph interpretation within a geographic information system. Topics include urban and rural land use, natural resource, and environmental assessment. Lect.2, Lab 2. Prerequisite: ESC/GEO 385. (Cross-listed with ESC/GEO; may only earn credit in one department.)
ESC 545	Advanced Remote Sensing	Advanced techniques of digital satellite and airborne image analysis and processing, emphasizing theory and applications in natural resource, land use and environmental assessment. Includes practical approaches to integrating imagery with geographic information systems area for spatial analyses and

		decision making. Data acquisition, integrity, manipulation, formatting, storage, and retrieval are also examined. Prerequisite: ESC/GEO 345. (Cross-listed with ESC/GEO: may only earn credit in one department.)
GEO 522	Meteorology and Weather Forecasting	Various principles and laws which govern the behavior of the atmosphere are investigated. Laws of gases and radiation, energy exchange between the earth and the atmosphere, laws of motion, various forces governing atmospheric motion, atmospheric moisture and psychrometry, condensation, preciptable water and precipitation, atmospheric stability/instability, thermodynamic characteristics of the atmosphere, vorticity, and synoptic meteorology are discussed. Surface and upper-air charts, synoptic patterns, thermodynamic charts, radar and satellite images, and weather patterns are analyzed for weather forecasting. Prerequisite: ESC 101 or equivalent. (Cross-listed with ESC/GEO; may only earn credit in one department.)
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MIC 534	Aquatic Microbial Ecology	An ecological study of bacteria, cyanobacteria and algae of aquatic ecosystems. Topics include microbial strategies for survival under various environmental conditions, the role of microorganisms in biogeochemical cycling of elements, interactions of microorganisms with other aquatic biota, the role of microorganisms in pollution problems, and applications of microbial ecology to biotechnology. Laboratory emphasis is on experimental design and sampling techniques, quantification of microbial biomass, and measurement of microbial activities in aquatic habitats. One weekend field trip required. Lect. 2, Lab. 3. Prerequisite: MIC 230 and three semesters of college chemistry; BIO 341 strongly recommended.
MIC 542	Plant Microbe Interactions	This course will explore in-depth various ways that plants interact with microbes in the environment, at the macroscopic, cellular, and molecular levels. Case studies will include both parasitic and mutualistic (symbiotic) interactions. Microbes include fungi, bacteria, nematodes, and viruses. Includes

		plant pathology and studies of the beneficial relationships between plants and microbes. Inquiry-based labs are integrated into the lecture and discussion sessions. Lect. 2, Lab 2. Prerequisite: BIO 203 or BIO 204, MIC 230 and BIO 306 or MIC 416. (Cross-listed with BIO/MIC; may only earn credit in one department.)
PTS 741	Evidenced Based Practice in Physical Therapy	This course is intended to provide the learner with strategies to evaluate the evidence underlying physical therapy practice. Learners will utilize this evidence as a framework for determining best practice. Evidence based strategies include analysis of outcome measures used in physical therapy, interpretation and analysis of clinical prediction rules, and conducting focused systematic reviews of physical therapy interventions.