ENVIRONMENTAL ENGINEERING ENE

Department of Civil and Environmental Engineering
College of Engineering

427. Environmental Toxicology and Society
Spring of odd years. 3(3-0) Interdepartmental with Animal Science; and Sociology. Administered by Animal Science. P: (ISB 200 or ISB 202 or ISB 204 or ISB 206H or BCH 200 or BS 111 or BS 110)
Impact of environmental chemicals on health and modern society. Cellular and organ functions and their interface with the environment. Limitations of scientific investigation and environmental regulations.

800. Environmental Engineering Seminar
Fall, Spring. 1(1-0) R: Open only to Environmental Engineering majors.
Current research in environmental engineering.

801. Dynamics of Environmental Systems
Spring. 3(3-0)
Principles of mass balance, reaction kinetics, mass transfer, reactor theory in environmental engineering.

802. Physicochemical Processes in Environmental Engineering
Fall. 3(3-0) P: ENE 801.
Physical and chemical principles of air and water pollution control and environmental contaminants in water, air and soils.

804. Biological Processes in Environmental Engineering
Fall. 3(3-0) P: ENE 801 or concurrently.
Engineering of microbial processes used in wastewater treatment, in-situ bioreclamation, and solid waste stabilization.

806. Laboratory Feasibility Studies for Environmental Remediation
Spring. 3(2-4) P: ENE 802, ENE 804 R: Open only to graduate students in Environmental Engineering, Environmental Engineering-Environmental Toxicology, and Environmental Engineeri ng-Urban Studies. Not open to students with credit in ENE 803 or ENE 805.
Analysis and characterization of contaminants in soil or water. Conceptual and preliminary design of treatment systems. Use of treatability studies to evaluate treatment options. Oral presentations and preparation of consulting reports with design recommendations.

807. Environmental Analytical Chemistry
Fall. 3(3-0) R: Open only to Environmental Engineering majors.
Techniques for measurement and analysis in environmental engineering. Sample preparation. Quality assurance.

808. Environmental Analytical Chemistry Laboratory
Spring. 1(0-3) P: ENE 807. R: Open only to Environmental Engineering majors.
Laboratory work in environmental analytical chemistry.

880. Independent Study in Environmental Engineering
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to Environmental Engineering majors.
Solution of environmental engineering problems not related to student's thesis.

890. Selected Topics in Environmental Engineering
Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. R: Open only to Environmental Engineering majors.
Selected topics in new or developing areas of environmental engineering.

892. Master's Research Project
Fall, Spring, Summer. 1 to 3 credits. R: Open only to master's students in the Environmental Engineering major. Approval of department.
Master's degree Plan B individual student research project. Original research, research replication, or survey and reporting on a research topic.

893. Master's Design Project
Fall, Spring, Summer. 3 to 5 credits. R: Open only to master's students in the Environmental Engineering major. Approval of Department.
Master's degree Plan B individual student environmental engineering design project.

899. Master's Thesis Research
Fall, Spring, Summer. 1 to 8 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

999. Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 72 credits in all enrollments for this course.

EPIDEMIOLOGY EPI

Department of Epidemiology
College of Human Medicine

390. Disease in Society: An Introduction to Epidemiology and Public Health
Spring. 3(3-0) Interdepartmental with Social Science.
Human epidemiology and population health issues facing contemporary society, in both developed and less developed settings. Health-related information in the mass media and scholarly publications.

810. Introduction to Descriptive and Analytical Epidemiology
Fall. 3(3-0) R: Open only to master's students in the Epidemiology major or approval of department.
Study of disease from a population perspective as the interaction of host, agent, and environment. Fundamental concepts include case definition, measuring frequency of disease, mortality and morbidity data, and major study designs.
SA: HM 810

812. Causal Inference in Epidemiology
Fall. 3(3-0) P: EPI 810, LCS 829. R: Open only to master's students in the Epidemiology major or approval of department.
Causal models, criteria, and causality related to study design and analysis in epidemiology. Application of theoretical concepts to the design, analysis, and assessment of epidemiologic research.
SA: HM 812

813. Investigation of Disease Outbreaks
Fall, Spring, Summer. 3 credits. P: EPI 810 or concurrently. R: Open only to master's students in the Epidemiology major or approval of department.
Principles of and practice in investigating disease outbreaks. Field trips required.
SA: HM 813

814. Nutritional Epidemiology
Fall of odd years. 3(3-0) P: EPI 810 or concurrently. R: Open only to master's students in the Epidemiology major or approval of department.
Methodologies used in epidemiologic studies of diet and health in the context of U.S. and international dietary patterns. Relationship between diet and specific diseases.
SA: HM 814

815. Epidemiology of Cardiovascular Disease
Summer of even years. 3(3-0) P: EPI 810. R: Open only to master's students in the Epidemiology major or approval of department.
Survey of methodologies used in epidemiologic studies of cardiovascular diseases. Review of evidence of genetic, environmental, and behavioral causes of cardiovascular disease.
SA: HM 815

816. Reproductive and Perinatal Epidemiology
Summer of odd years. 3(3-0) P: EPI 810 or concurrently. R: Open only to master's students in the Epidemiology major or approval of department.
Epidemiology of adverse health states in pregnancy and the puerperium. Impact of these health states on subsequent child development.
SA: HM 816

817. Epidemiology of Communicable Diseases
Fall of even years. 3(3-0) P: EPI 810. R: Open only to master's students in the Epidemiology major or approval of department.
Application of principles of epidemiology to research in communicable diseases relevant to public health in the U.S. and other countries.
SA: HM 817

818. The Epidemiology of Zoonotic Diseases
Spring of odd years. 3(3-0) Interdepartmental with Veterinary Medicine. P: EPI 810. R: Open only to master's students in the Epidemiology major or approval of department.
Human susceptibility to diseases of animals. Modes of transmission, surveillance, and strategies for prevention of specific zoonotic diseases.
SA: HM 818

819. Spatial Epidemiology and Medical Geography
Spring of even years. 3(3-0) Interdepartmental with Geography. P: EPI 810. R: Open only to master's students in the Epidemiology major or approval of department.
Concepts, techniques, and utilization of spatio-epidemiologic analyses for human health.
SA: HM 819

820. Evidence-Based Medicine
Fall. 3(3-0) Interdepartmental with Medicine. P: (EPI 810 or concurrently and STT 421 or concurrently)
Methodology of clinical epidemiology and health services outcomes research. Linkage of epidemiology with daily clinical problems.

821. Epidemiology of the Health and Cognitive Status of the Elderly
Fall of odd years. 3(3-0) P: EPI 810 or concurrently. R: Open only to master's students in the Epidemiology major or approval of department.
Interpretation of research on the health and cognitive status of elderly. Interpretation of statistical tests of hypotheses. Conclusions based on data.
SA: FMP 821, HM 821

823. Cancer Epidemiology
Fall of even years. 3(3-0) P: STT 421, EPI 810. R: Open only to master's students in the Epidemiology major or approval of department.
Basic principles of carcinogenesis. Major etiologic factors, types of malignancies, and biomarkers for susceptibility and exposure. Prevention and early detection of cancer.
SA: HM 823

825. Epidemiologic Modeling
Spring of odd years. 3(3-0) Interdepartmental with Physics. P: EPI 810, STT 422. R: Approval of department.
Mathematical modeling of epidemics. Stochastic and chaotic systems approaches. Applications through personal computer software.
SA: HM 825

826. Research Methods in Epidemiology
Fall. 3(3-0) P: STT 422. R: Open only to master's students in the Epidemiology major.
Analyses of epidemiologic and clinical data applying statistical methods, based on logistic and survival models, using standard software.
SA: HM 826

890. Independent Study in Epidemiology
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: EPI 810. R: Open only to master's students in the Epidemiology major. Approval of department.
Independent study in areas relevant to epidemiology such as population genetics.
SA: HM 890

899. Master's Thesis Research
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Open only to master's students in the Epidemiology major.
SA: HM 899

FAMILY AND CHILD ECOLOGY FCE

Department of Family and Child Ecology
College of Human Ecology

145. The Individual, Marriage and the Family
Fall, Spring. 3(3-0) R: Open only to freshmen or sophomores.
Development of the young adult in the human ecological context. Issues of sexuality, gender, parenting, work and family interface, communication, and resource use. Diversity in relationships and families.

211. Child Growth and Development: Conception Through Early Childhood
Fall, Spring. 3(3-0) R: Not open to freshmen.
Physical, cognitive, social, emotional, and ecological aspects of human growth and development from conception through early childhood.

211L. Child Growth and Development Laboratory
Fall, Spring. 1(0-3) P: (FCE 211 or concurrently or PSY 244) R: Not open to freshmen.
Observing and recording the behavior and development of young children.

212. Children, Youth and Family
Fall, Spring. 3(3-0)
An ecosystems perspective on development during childhood and adolescence emphasizing family and community contexts.

225. Ecology of Lifespan Human Development in the Family
Fall, Spring. 3(3-0) R: Not open to seniors.
Human development across the lifespan with an ecological perspective. Relationships between human resource professionals and family systems.

238. Personal Finance
Fall, Spring, Summer. 3(3-0)
Strategies, techniques and resources useful in the management of personal finance.

270. Introduction to Family Community Services
Fall, Spring. 4(3-2)
Family community services from an ecological perspective. Professional orientation and factors influencing the field. Participation in community agency required.

280. Community as Context for Individual and Family Development
Fall, Spring. 3(2-2)
Families' and individuals' fit within a community over their life span from an ecological perspective. Analysis of change. Influence of context on development and its implications for family community services. Community observations required.

320. Interaction Processes with Children in Groups
Fall, Spring. 3(3-0) P: (FCE 211L) R: Open only to students in the Department of Family and Child Ecology or Graduate Lifelong Education students pursuing additional endorsement in Early Childhood Education. C: FCE 320L concurrently.
Principles of verbal and non-verbal interaction in relation to children's behavior in groups. Focus on young children in early childhood programs.

320L. Interaction with Children-Laboratory
Fall, Spring. 1(0-4) R: Open only to students in the Department of Family and Child Ecology or Graduate Lifelong Education students pursuing additional endorsement in Early Childhood Education. C: FCE 320 concurrently.
Practice applying principles of interaction to individuals and small groups in early childhood programs.

321. Curriculum for Early Childhood Programs
Fall, Spring. 3(3-0) P: (FCE 320L) and completion of Tier I writing requirement. R: Open only to students in the Department of Family and Child Ecology or Graduate Lifelong Education students pursuing additional endorsements in Early Childhood Education. C: FCE 321L concurrently.
Child development principles and accreditation standards for designing curricula for early childhood programs. Planning and evaluating learning activities and programs.

321L. Curriculum for Early Childhood Programs: Laboratory
Fall, Spring. 1(0-4) P: (FCE 320L) R: Open only to students in the Department of Family and Child Ecology or Graduate Lifelong Education students pursuing additional endorsement in Early Childhood Education. C: FCE 321 concurrently.
Supervised practice in providing learning activities for individual children and small groups. Planning, implementing and evaluating activities. Field trips may be required.

345. Principles of Family Studies
Fall, Spring. 3(3-0) P: (FCE 211 or FCE 212 or FCE 225) R: Not open to freshmen.
Historical, social, cultural, and economic perspectives on contemporary families. Approaches to studying families. Role of communication, resources, and decision making in family systems.