493  English Internship  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. P: M: Completion of Tier I writing requirement. RB: 15 credits of English. R: Open only to juniors or seniors in the Department of English or American Studies major. Supervised pre-professional field experience in English.

499  Senior Thesis Research  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. P: M: Completion of Tier I writing requirement. R: Open only to juniors or seniors with approval of department.

Faculty-supervised research project that demonstrates ability to do independent research and submit or present a major paper.

ENGLISH AS ESL  
A SECOND LANGUAGE

Department of Linguistics and Germanic, Slavic, Asian and African Languages

College of Arts and Letters

090A  Intensive English for Non-Native Speakers  
Fall, Spring. 0(20-0) R: Approval of English Language Center. SA: ENG 090A
Explanation and intensive practice of English skills. Focus on beginning grammar, speaking, listening, reading, and writing.

090B  Intensive English for Non-Native Speakers  
Fall, Spring. 0(20-0) R: Approval of English Language Center. SA: ENG 090B
Explanation and intensive practice of English skills. Focus on intermediate grammar, speaking, listening, reading, and writing.

090C  Intensive English for Non-Native Speakers  
Fall, Spring. 0(20-0) R: Approval of English Language Center. SA: ENG 090C
Explanation and intensive practice of English skills. Focus on advanced grammar, speaking, listening, reading, and writing.

220  English Grammar and Composition for Non-Native Speakers of English  
Fall, Spring. Summer. 6(6-0) A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of the English Language Center SA: ENG 093

221  English Composition for Non-Native Speakers of English  
Fall, Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of English Language Center SA: ENG 095
Intensive and extensive writing in English for academic purposes.

222  Listening and Speaking for Academic Purposes for Non-Native Speakers of English  
Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of English Language Center SA: ENG 092
Improvement of oral English skills for academic purposes.

223  Reading for Academic Purposes for Non-Native Speakers of English  
Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of English Language Center SA: ENG 094
Study of English for students needing a reading knowledge of English for academic purposes.

ENTOMOLOGY  
ENT

Department of Entomology

College of Agriculture and Natural Resources

110  Applied Entomology for Ornamentals and Turf  
Fall of odd years. 3(2-2) Fall: NW. Mich.Coll./MSU. R: Interest or experience in ornamentals and turf production systems. R: Open only to students in the Institute of Agricultural Technology. Not open to students with credit in ENT 111.
Anthropod pests of woody ornamentals and turf grasses. Groups and species of importance to northern Michigan.

111  Basics of Applied Entomology  
Spring. 2(2-1) R: Open only to students in the Institute of Agricultural Technology. SA: AT 057 Not open to students with credit in ENT 110 or AT 057.
Basic insect biology, principles of integrated pest management, and the major pests of field crops, woody ornamentals, other perennials, turf, and commercial greenhouses. Offered first ten weeks of semester.

205  Pests, Society and Environment  
Fall, Spring. 3(3-0) Interdepartmental with Plant Pathology.

222  New Horizons in Biotechnology  
Fall, Spring. 3(2-0) Interdepartmental with Crop and Soil Sciences. Administered by Department of Crop and Soil Sciences.
Perspectives on biotechnology for safer food production, environmental quality, and improved human health. Impacts of biotechnology on the national economy. Political and ethical ramifications of applied biotechnology.

319  Introduction to Earth System Science  
Fall, Spring. 3(3-0) Interdepartmental with Plant Biology; Geological Sciences; Zoology; Sociology. RB: Completion of one course in biological or physical science.
Systems approach to Earth as an integration of geochmical, geophysical, biological and social components. Global dynamics at a variety of spatio-temporal scales. Sustainability of the Earth system.

362  Management of Turfgrass Pests  
Fall. 4(3-2) Interdepartmental with Crop and Soil Sciences; Plant Pathology. Administered by Department of Crop and Soil Sciences. P: M: (CSS 232)
Chemical, biological, and cultural methods of managing weeds, diseases, and insect pests of turfgrass. Environmental considerations in pest management.

401  Directed Studies  
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Approval of department.
Individual field or laboratory research, or review of published literature, on a topic of interest.

404  Insects: Success in Biodiversity  
Fall. 4(3-4) P: M: (BS 110) or (BOT 105 and BOT 106)
Biological adaptations of insects to the environment. Evolution, behavior, ecology, metamorphosis, classification, importance to humans, and pest management.

407  Diseases and Insects of Forest and Shade Trees  
Spring. 4(3-3) Interdepartmental with Plant Pathology; Plant Biology. Administered by Department of Plant Pathology. P: M: (PLB 105 or BS 110 or LBS 144 or LBS 148H) and (PLB 218 or FOR 204 or HRT 211) and completion of Tier I writing requirement. SA: BOT 407
Diseases, insects, and environmental problems affecting trees in forests, parks, suburbs, and nurseries. Methods of control.

410  Apiculture and Pollination  
Fall. 2(1-2)
Biology of bees and their relationship to flowers, pollination and crop production.

419  Advanced Earth System Science  
Spring. 3(2-2) Interdepartmental with Plant Biology; Geological Sciences; Zoology; Sociology. P: M: (ENT 319)
Systems science theory applied to analysis of the biological, geological, physical, and social causes and consequences of global changes. Issues of sustaining the Earth system.

422  Aquatic Entomology  
Fall of odd years. 3(2-3) Interdepartmental with Fisheries and Wildlife; Zoology. P: M: (BS 110) SA: ENT 420
Biology, ecology and systematics of aquatic insects in streams, rivers and lakes. Field trips and aquatic insect collection required.

442  Concepts of Biological Information Systems  
Spring. 3(3-0) Interdepartmental with Resource Development. R: Open only to seniors or graduate students.
Systems approach to managing biological information using computer technology.

469  Biomonitoring of Streams and Rivers  
Summer of even years. 3(2-3) Summer: KBS. Interdepartmental with Fisheries and Wildlife. P: M: (BS 110)
Practical field and lab rapid bioassessment methodologies used to sample and assess the biota of streams and rivers. Sampling and identification of fish, macroinvertebrates and other biota will be emphasized.
ENVIRONMENTAL ECONOMICS AND POLICY

Department of Agricultural Economics
College of Agriculture and Natural Resources

201 Community Economics
Fall. 3(3-0) SA: PRM 201
Policy analysis of state and local government revenues, services, and private business regulation. Impact on resource use, economic development, income distribution and human values.

211 Introduction to Gender and Environmental Issues
Spring. 3(3-0) Interdepartmental with Fisheries and Wildlife, Forestry, Resource Development; Women's Studies. Administered by Department of Fisheries and Wildlife. R: Not open to freshmen. SA: PRM 211

255 Ecological Economics
Fall, Spring. 3(3-0) RB: (EC 201) SA: PRM 255
Relationship between the economy and the natural environment. Economic organization and sustainability. Economic concepts applied to natural resources and agriculture.

260 World Food, Population and Poverty
Fall. 3(3-0) SA: PRM 260
Description and analysis of world food, population and poverty problems. Interrelationships between developed and developing countries.

320 Environmental Economics
Spring. 3(3-0) P: (EEP 255) SA: PRM 320
Analytical methods for evaluating economic impacts of environmental policies and understanding the economic causes of environmental problems.

335 Taxes, Government Spending and Public Policy
Fall, Spring, Summer. 3(3-0) Interdepartmental with Economics. Administered by Department of Economics. P: (EC 201 or EC 251H) SA: PRM 335 Not open to students with credit in EC 435 or EC 436.
Economics of the public sector. Public goods, externalities, design and incidence of the tax system. Equity and efficiency effects of government programs.

404 Public Sector Budgeting and Program Evaluation (W)
Spring. 3(3-0) P: (EEP 201) and completion of Tier I writing requirement. RB: (EC 201 or EC 202) R: Not open to freshmen or sophomores. SA: PRM 404

405 Corporate Environmental Management
Fall. 3(3-0) Interdepartmental with Agribusiness Management. P: (EEP 255 or ABM 332 or MGT 315 or MGT 325) SA: PRM 405
Integration of environmental protection and pollution prevention with business management. Economic and strategic analysis of environmental protection.

430 Law and Resources
Fall. 3(3-0) Interdepartmental with Resource Development; Forestry. Administered by Department of Resource Development. R: Open only to juniors or seniors or graduate students. SA: PRM 430
Legal principles applied to the environment and natural resources. Sovereignty, property rights, land and water use, jurisdiction, public trust doctrine, wetland law, and eminent domain. Case and statutory law analysis.

433 Law and Social Change
Spring. 3(3-0) Interdepartmental with Resource Development; Sociology. Administered by Department of Resource Development. RB: (RD 301 or RD 336 or GBL 396) R: Open only to juniors or seniors. SA: PRM 433
Function of law in a modern society. Concepts of power, public regulation, civil rights, and property rights. Limits on freedom.

440 Environmental Policy Making in Michigan
Spring. 3(3-0) Interdepartmental with Resource Development. Administered by Department of Resource Development. R: (RD 200 or EEP 201 or PLS 100 or PLS 301 or PLS 304 or PRM 440) Not open to freshmen or sophomores.
State legislative process and its role in environmental policy formulation. Influence of lobbying, grass roots environmental movements, and economic factors.

453 Women and Work: Issues and Policy Analysis
Spring. 3(3-0) Interdepartmental with Economics; Women's Studies. R: (EC 201 or EC 202 or EEP 201 or concurrently) R: Not open to freshmen or sophomores.

460 Natural Resource Economics
Spring. 3(3-0) Interdepartmental with Resource Development; Recreation and Tourism Resources; Biosystems Engineering. Administered by Department of Resource Development. R: (RD 302 or EEP 255) SA: PRM 460
Economic framework for analyzing natural resource management decisions. Spatial and inter-temporal allocation of renewable and nonrenewable resources. Special emphasis on institutions, externalities, and public interests in resource management.

470 Theory and Practice in Community and Economic Development
Spring. 3(3-0) Interdepartmental with Resource Development; Sociology. Administered by Department of Resource Development. R: Open only to juniors or seniors. SA: PRM 470
Concepts, principles, models, and skills for community and economic development. Community participation in local development initiatives.

490 Independent and Supervised Study
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 7 credits in all enrollments for this course. R: (EEP 201 or EEP 255) R: Open only to Environmental Economics and Policy majors. Approval of department; application required. SA: PRM 490
In-depth independent study of topics affecting public resource management. Complementary with previous coursework, adapted to career aspirations.

493 Professional Internship in Environmental Economics and Policy
Fall, Spring, Summer. 1 to 4 credits. A student may earn maximum of 6 credits in all enrollments for this course. R: (EEP 201 and EEP 255) R: Open only to juniors or seniors in the Environmental Economics and Policy major. Approval of department; application required. A student may earn a maximum of 6 credits in all enrollments for any or all of these courses: ABM 493, AEE 493, ANR 493, ANS 493, CSS 493, EEP 493, FIM 493, FW 493, HRT 493, PKG 493, PLP 493, PRR 493, and RD 493. SA: PRM 493
Supervised professional experience in agencies, organizations or businesses related to environmental economics and policy.