323. Mechanical Systems in Agriculture and Natural Resources  
Winter. 4(4-0) PHY 337, 357.  
Phenomenological aspects of the laws of mechanics and their influence on the design of mechanical and structural systems encountered in agriculture and natural resources.

324. Processing Systems for Biological Products  
Spring. 4(4-0) MTH 109 or 111, PHY 338.  
Physical processes which influence biological products during production, handling, processing, and distribution. Mass and heat balances, fluid flow, steam generation, psychrometrics, heat exchange, refrigeration and dehydration will be discussed.

416. Light Structural Systems  
(A E 416) Fall. 4(4-0) PHY 237 or approval of department.  
Functional planning of animal structures. Properties of building materials and selecting building components to satisfy requirements of light structures.

421. Electrical Energy Utilization  
(A E 421) Spring. 4(3-2) PHY 238 or approval of department.  
Efficient utilization of electrical energy: selection, operation and control of electrical equipment. Design of electrical systems.

431. Irrigation, Drainage and Erosion Control Systems  
(A E 431) Spring. 4(3-2) SLS 310 or approval of department.  
Use of surveying, design, construction and cost estimates of drainage, irrigation and water control systems.

443. Machinery and Tractor Systems  
(A E 443) Fall, Spring. 4(3-2) A E 243 or approval of department.  
Characteristics of basic agricultural field machinery. Diesel engine, fuel injection and combustion chamber characteristics. Torque and power transmission, tractor stability and implement hitching.

AGRICULTURE  
College of Agriculture and Natural Resources

124A. Introduction to Careers in Vocational and Practical Arts Education—Agriculture  
Fall. 2(1-2) Interdepartmental with and administered by Education.

275. Exploring International Agriculture  
Spring. 3(3-0) Interdepartmental with Natural Resources.  
Exploration of overseas assignments with international agencies; potential world food necessities and possibilities; special problems of the tropics compared with those in temperate regions.

350. Leadership Development for Agriculture and Natural Resources  
Winter, Spring. 3(3-0) May re-enroll for a maximum of 8 credits. Approval of department. Interdepartmental with Natural Resources.  

399. Agriculture Internship  
Fall, Winter, Spring, Summer. Zero to 10 credits. [10 credits] Juniors and approval of department. Interdepartmental with Natural Resources.  
Professionalized experiences in a student's major. Supervision and evaluation by faculty and cooperating agencies.

401. Agriculture and Natural Resources Communications Internship  
Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 6 credits. 401, approval of college.  
Internship with professionals in communications field with emphasis on student's areas of interest --writing, radio, TV, publications, etc.

425. Agriculture and Natural Resources Seminar  
Spring. 2(2-0) Interdepartmental with Natural Resources.  
Current agricultural, natural resources, and environmental problems and solutions as presented by discussion leaders from various disciplines, arranged by undergraduate students.

435. Pest Management I: Pesticide Chemistry and Application System for Plant Protection  
Fall. 3(3-4) ENT 430, BOT 405, HRT 493 or CSC 492, Interdepartmental with Natural Resources and the College of Natural Science. Administered by the College of Natural Science.  
A broad overview of pesticide chemistry, efficient usage, environmental fate, legislation and application techniques.

436. Pest Management II: Biological Systems for Plant Protection  
Winter. 3(3-0) ENT 430, BOT 405, HRT 493 or CSC 492, Interdepartmental with Natural Resources and the College of Natural Science. Administered by the College of Natural Science.  
Management of plant pests utilizing host resistance, cultural practices, legislation, and biological systems.

437. Pest Management III: Systems Management for Plant Protection  
Spring. 4(3-2) NSC 435 and 436, FSM 200 or EC 201, Interdepartmental with Natural Resources and the College of Natural Science. Administered by the College of Natural Science.  
Designed to integrate knowledge and improve ability in arriving at pest management decisions of varying complexity involving the fields of agronomy, wildlife, horticulture, entomology, and plant pathology. See page A-3, item 3.

AMERICAN STUDIES  
AMS

College of Arts and Letters

301. Issues in American Civilization  
Fall, Winter. Spring. 3(3-0) May re-enroll for a maximum of 9 credits. Not applicable to major requirements. Selected issues in American life past and present, with materials drawn from such disciplines as history, social sciences, philosophy, literature and the arts. Topics vary.

410. Perspectives in American Studies  
Fall. 3 credits. Juniors in American Studies or approval of American Studies Committee.  
Methods and significant works, for majors in the American Studies program. Offered by members of the relevant departments.

411. Problems in American Civilization  
Winter. Spring. 3 credits. Majors must re-enroll for a maximum of 4 credits. 410, Juniors in American Studies or approval of American Studies Committee.  
Approach to selected problems in American life employing the objectives and approaches of interdisciplinary studies. Offered by members of relevant departments, for majors in the American Studies program.