CROP AND SOIL SCIENCES

Department of Crop and Soil Sciences
College of Agriculture and Natural Resources

101. Introduction to Crop Science
Fall. 3(2-2)
QA: CSS 101

110. Computer Applications in Agronomy
Fall. 2(1-2)
R: Open only to College of Agriculture and Natural Resources students. Not open to students with credit in CPS 100. Use of computers in agriculture. Basic computer operating systems. Management and use of storage media. Laboratory experience in word processing, spreadsheet, data bases, programming languages, networking, and software related to agriculture.

201. Forage Crops
Fall. 3(2-2)
QA: CSS 201

210. Fundamentals of Soil and Landscape Science
Fall. 3(2-3) Interdepartmental with Forestry.
P: CEM 141.
QA: CSS 210

232. Introduction to Turfgrass Management
Fall. 3(2-2)
P: CSS 110; CSS 210 or concurrently. Turfgrass utilization, identification, establishment and management principles. Responses to various cultural practices. 
QA: CSS 210 QA: CSS 318

262. Turfgrass Management Seminar
Fall. 0(2-0)
P: CSS 232 or concurrently. Presentations by individuals involved in turfgrass and golf course management. Topics include golf course construction and operations, preparation for tournaments, and public relations. 
QA: CSS 315 QA: CSS 417

310. Soil Management and Environmental Impact
Spring. 3(2-2)
P: CSS 210. Management of soil physical and chemical properties for the production of food and fiber. Soil management systems that reduce the environmental impact on soil, water and air resources and maximize crop production potential. 
QA: CSS 210 QA: CSS 390

322. Advanced Turf Management
Spring. 3(2-0)
P: CSS 232. Effect of light, heat, cold, drought, and traffic on turfgrass growth and development. Impact of practices such as mowing, cultivation, and compaction on the growth of grasses. 
QA: CSS 315 QA: CSS 416

342. Turfgrass Soil Management
Fall. 3(0-3)
QA: CSS 315 QA: CSS 414

350. Introduction to Plant Genetics
Spring. 3(4-0)
P: BOT 106 or BS 111. R: Not open to freshmen and sophomores. Fundamentals of plant genetics with applications to agriculture and natural resources. Temporary approval effective from Spring Semester 1993 through Spring Semester 1995. 
QA: CSS 315 QA: CSS 390

352. Management of Turfgrass Pests
Fall. 4(3-2) Interdepartmental with Botany and Plant Pathology, and Entomology. 
QA: CSS 315 QA: CSS 419

370. Agricultural Cropping Systems Management
Fall. 3(3-3)
P: CSS 101 or CSS 210, MTH 110 or MTH 116. R: Not open to freshmen and sophomores. Interdisciplinary decision making to select crop and production systems based upon soil productivity, genetic adaptation, environmental impacts, and economic constraints. 
QA: CSS 315 QA: CSS 210, MTH 108

380. Crop Physiology
Spring of odd-numbered years. 3(2-3)
P: CSS 101; BOT 105 or BOT 301. R: Not open to freshmen and sophomores. Physiological and metabolic function of plants from a whole plant viewpoint. Environmental effects on crop growth, development, and yield. 
QA: CSS 101, BOT 301 QA: CSS 380

402. Principles of Weed Science
Fall. 3(2-2)
QA: CEM 143, BOT 301 QA: CSS 402

406. Seed Production and Technology
Fall of even-numbered years. 3(2-2)
P: CSS 101, CSS 350. R: Not open to freshmen and sophomores. Principles and practices of field seed production. Crop improvement, variety release, seed production, seed technology and evaluation involved in producing high quality field crop seed. 
QA: CSS 101, CSS 350 QA: CSS 406, CSS 485

420. Soil Fertility and Chemistry
QA: CSS 210 QA: CSS 430

440. Soil Biophysics
Fall of even-numbered years. 3(2-2) P: CSS 210. Not open to freshmen and sophomores. Plant growth and soil physical conditions which influence productivity. Principles and applications of soil texture, structure, mechanical impedance, aeration and water. Root responses to the environment. 
QA: CSS 210 QA: CSS 440

451. Cellular and Molecular Principles and Techniques for Plant Sciences
Spring. 4(2-2) Interdepartmental with Horticulture and Forestry. 
P: CSS 300 or ZOL 341. Principles, concepts, and techniques of agricultural plant biotechnology. Recombinant DNA technology, plant molecular biology, transformation, tissue culture, and organ culture in relation to plant improvement. 
QA: CSS 350 or ZOL 441 QA: CSS 451, HRT 338

453. Pollutants in the Soil Environment
Fall. 3(0-3)
P: CEM 143. R: Open only to seniors and graduate students. Evaluated of the properties, genesis, and classification of soil resources to assist in making land-use decisions. Field trips required. 
QA: CSS 210 QA: CSS 470

490. Independent Study
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. 
P: CSS 300 or CSS 310. R: Approval of department; application required. 
Individual work on field, laboratory, or library research problem of special interest to the student. 
QA: CSS 101 or CSS 210 QA: CSS 411

491. Special Topics
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. 
P: CSS 101 or CSS 210. Topics from crop production, crop physiology, turfgrass management, organic soils, turfgrasses, soils, soil fertility, plant and soil relationships, genetics, biotechnology, environmental science, or sustainable agriculture. 
QA: CSS 101 or CSS 210 QA: CSS 412

492. Seminar
Fall. 1(0-0)
P: CSS 210; CSS 342 or CSS 370. Synthesis, integration and application of agronomic principles to current issues in agronomy via discussion and oral and written communication. 
QA: CSS 210, CSS 370 or CSS 342 QA: CSS 420

801. Physiological Crop Ecology
Fall of even-numbered years. 2(0-2) Environmental factors that limit crop distribution and productivity. Physiological basis for stress injury, resistance to temperature extremes, flooding, drought, and salinity. 
QA: CSS 801

Crop and Soil Sciences—Descriptions of Courses
Courses

823. Methods in Genetic Engineering of Plants
Fall of even-numbered years. (4-0-8) Interdepartmental with Horticulture and Forestry. Bacterial transformation, plant transformation via T-DNA, protoplast/PEG, and electroporation methods. Detection of foreign gene integration and expression.

825. Clay Mineralogy and Soils Genesis

831. Soil and Plant Resources for Sustained World Food Production
Spring of even-numbered years. (3-3) World food production capacities related to soil and climatic resources. Management and utilization of genetic resources for sustained production of human foods and animal feeds.

840. Soil Physics
Fall of even-numbered years. (3-3) R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science. Physical properties and functions including texture, structure, consistency, aeration, moisture content, and temperature. Quantitative measurement of plant growth, Agronomic and engineering practices.

845. Soil Chemistry
Spring. (3-0-3) R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science. Ion activities, ionic exchange and equilibrium reactions. Soil pH, macro- and micronutrients, salinity and availability of nutrients to plants.

850. Plant Mineral Nutrition
Fall of odd-numbered years. (3-0-3) Interdepartmental with Horticulture.

855. Interfacial Environmental Chemistry
Fall of even-numbered years. (4-4-0) R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science. Principles and mechanisms of reactions at solid-liquid interfaces emphasizing environmental chemistry. Sorption of ions and organic compounds. Properties of colloids. Kinetics of surface reactions.

865. Organic Chemistry of Soils
Spring of even-numbered years. (2-2-0) Chemistry of natural and anthropogenic organic substances in soils.

880. Independent Study
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 9 credits in all enrollments for this course.

883. Selected Topics
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.

899. Master's Thesis Research
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 99 credits in all enrollments for this course.

445. Field Studies in Earth Science
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course.

446. Laboratory Investigations in Earth Science
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course.

500. Special Problems in Earth Science
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course.

ECONOMICS

Department of Economics

201. Introduction to Microeconomics
Fall, Spring, Summer. (3-0) R: Not open to students with credit in EC 251H. Economic institutions, reasoning and analysis. Consumption, production, determination of price and quantity in different markets. Income distribution, market structure and normative analysis.

202. Introduction to Macroeconomics
Fall, Spring, (4-0) R: Not open to students with credit in EC 252H. Determinants of Gross National Product, unemployment, inflation and economic growth. National income accounting and fiscal policy. Aggregate demand, supply management and monetary policy.

251H. Microeconomics and Public Policy
Fall, Spring, Summer. (3-0) R: Open only to Honors College students. Not open to students with credit in EC 301. Theories of consumer behavior, production and cost. Output and price determination in competitive and monopolistic Welfare economics, general equilibrium, externalities, and public goods.

252H. Macroeconomics and Public Policy
Fall, Spring, Summer. (3-0) Not open to students with credit in EC 251H. Theory of national income, unemployment, inflation and economic growth and its application to economic analysis and policy.

301. Intermediate Microeconomics
Fall, Spring, Summer. (3-0) R: Not open to students with credit in EC 251H. Theories of consumer choice, production, rent, perfect competition, and monopoly. Welfare economics, general equilibrium, externalities and public goods.

302. Intermediate Macroeconomics
Fall, Spring, Summer. (3-0) Not open to students with credit in EC 252H. National income accounting. Determination of aggregate output, employment, price level, and inflation rate. Policy implications.

305. Comparative Economic Systems
Fall, Spring, Summer. (3-0) R: EC 251H or EC 252H. Characteristics and functions of economic systems. Alternative patterns of economic control, planning, and market structure. Theories, philosophies, and experiences associated with capitalism, socialism, and mixed economies.

EARTH SCIENCE

Department of Geological Sciences

445. Field Studies in Earth Science
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course.

446. Laboratory Investigations in Earth Science
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course.