

928. Conceptual Foundations of Educational Research
Fall. 3(3-0) Approval of instructor. Interdepartmental with and administered by the Department of Teacher Education. Epistemology and ideology in educational research. Analysis of concepts of method, causation, objectivity and subjectivity in historical perspective.

931A. Seminar in Instructional Technology: Research and Development
(ED 931A.) Fall. 3(3-0) Approval of department.
History and development of instructional technology emphasizing leaders, events, research and legislation affecting use of instructional technology in education.

931B. Seminar in Instructional Technology: Research and Development
(ED 931B.) Winter. 3(3-0) Approval of department.
Analysis and appraisal of selected research studies in instructional technology with attention to purposes, rationales, assumptions, designs, methodologies and findings.

931C. Seminar in Instructional Technology: Research and Development
(ED 931C.) Spring. 3(3-0) Approval of department.
Analysis and appraisal of student's dissertation proposals and reports on surveys of related literature.

934A. Seminar in LOGO Educational Research
Fall. 3(3-0) CEP 434 or CEP 834.
Survey of current research and educational applications of LOGO; analysis of LOGO list-processing characteristics.

935. Seminar in Principles and Practice of Instructional Consultation
(ED 935.) Spring. 3(3-0) CEP 931A, CEP 931B, CEP 410, approval of instructor.
Theoretic framework for consultation with instructional development clients. Case studies, role play simulations, debriefings. Application of the principles and development of consultation strategies and styles.

939. Policy and Legal Issues in Testing
Winter. 3(3-0) CEP 401. Interdepartmental with and administered by the Department of Teacher Education.
Public policy and legal issues concerning the use of standardized testing to make critical decisions about individuals in American public education.

948A. Counseling Theories
(ED 960.) Fall. 3(3-0) Approval of instructor. Interdepartmental with and administered by the School of Health Education, Counseling Psychology and Human Performance.
Survey of counseling theories and research with emphasis on current issues which have implications for counseling practice or for counselor education.

948B. Psychology of Vocational Development
(ED 894.) Winter. 3(3-0) Approval of instructor. Interdepartmental with and administered by the School of Health Education, Counseling Psychology and Human Performance.
Relationship between psychological concepts and vocational development.

949B. Learning Foundations of Counseling Psychology
(ED 960B.) Fall. 3(3-0) HCP 949A or approval of instructor. Interdepartmental with and administered by the School of Health Education, Counseling Psychology and Human Performance.
Principles of learning and their application to the counseling process.

953. Ethics in School and Counseling Psychology
Spring. 3(3-0) Doctoral students in counseling psychology or school psychology. Interdepartmental with and administered by the School of Health Education, Counseling Psychology and Human Performance.
Professional ethics, standards, principles, guidelines and issues concerning the training and professional activities of counseling psychology and school psychology. Relevant legal issues and precedents.

975A. Field Experience: Special Education Administration Simulation
(ED 990A.) Spring. 3(0-9) Approval of instructor.
Supervised graduate practicum in administration of the Special Education program of a simulated school district.

975B. Field Experience: Special Education Administration
(ED 990B.) Fall, Spring. 3 to 12 credits. May reenroll for a maximum of 18 credits. Approval of department.
Supervised graduate practicum or internship in special education administration.

976. Policy Issues in Special Education
Fall. 4(4-0) Graduate students and approval of instructor.
Policy concerns in special education including economic, social, legal, and organizational issues. Policy implications within the theoretical framework of organizational change.

982. Seminars in Counseling, Educational Psychology and Special Education (MTC)
Fall, Winter, Spring, Summer. 1 to 9 credits. May reenroll for a maximum of 15 credits if different topics are taken. Approval of department.
Seminars in the various fields of emphasis in counseling, educational psychology and special education.

983. Readings and Independent Study in Counseling and Educational Psychology
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 15 credits. Approval of department.
Study on an individual or group basis in the various fields of emphasis.

984. Laboratory and Field Experience in Counseling and Educational Psychology
Fall, Winter, Spring, Summer. 1 to 9 credits. May reenroll for a maximum of 15 credits. Approval of department.
Supervised graduate practicums, observations, internships, and externships in the various areas of emphasis.

999. Doctoral Dissertation Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

CRIMINAL JUSTICE C J

College of Social Science

110. Introduction to Criminal Justice
Fall, Winter, Spring, Summer. 3(3-0)
Agencies and processes of criminal justice, emphasizing historical, constitutional (legal), and political considerations. Criminal Justice is also analyzed as a system, with the problems and prospects for change.

210. Introduction to Forensic Science
Spring. 3(3-0) Not open to majors in Criminalistics.
Nontechnical survey of forensic science and its relationship to the criminal justice system. Evidence and crime scene investigations. Criminalistics, including evidence, serology, pathology, toxicology, questioned documents and expert testimony.

312. Criminalistics I
Fall. 3(0-6) Criminalistics majors.
Criminalistics laboratory techniques. Photography, crime scene recording, reproduction of evidence, latent fingerprints.

313. Criminalistics II
Winter. 3(0-6) C J 312, approval of school.
Criminalistics laboratory techniques. Firearms. Hair and fiber identification. Comparative microscopy.

314. Criminalistics III
Spring. 3(0-6) C J 313, approval of school.
Criminalistics techniques. Serology. Comparative micrography. Document examination. Forensic chemistry.

315. Criminal Investigation
Fall, Winter. 4(4-0) C J 375.
Theory of investigation, crime scene conduct, collection and preservation of physical evidence and methods used in scientific interpretation of evidence.

318. Crime and the Community
Fall, Spring. 4(4-0) C J 320.
Interdisciplinary survey of police-criminal justice and community relations. Stresses the community role and responsibility for crime, crime-coping programs, and the need for the improvement of criminal justice processes.

**Descriptions — Criminal Justice
of
Courses**

320. Criminology

Fall, Winter, Spring, Summer. 4(4-0)
SOC 241 or C J 110 or approval of school. Inter-
departmental with and administered by the
Department of Sociology.

Crime analyzed from sociological perspective:
meaning of 'crime,' crime statistics, and mea-
surement, theories of crime causation, crime
typologies, e.g., professional organized, violent,
sex, white-collar crimes, juvenile delinquency.

**330. Organizational Theory and the
Politics of Criminal Justice**

Fall, Spring. 4(4-0) C J 320 or
approval of school.

An historic and a comparative overview of the
principles of organization used by criminal jus-
tice agencies. Current theories and research on
organization, with special attention to the
impact of politics on system objectives and policy
development.

335. Police Process

Fall, Winter, Spring, Summer. 4(4-0)
C J 110, C J 320.

Functions of law enforcement and the roles of
the police in modern society. Study of the police
from several perspectives: historical, sociologi-
cal, psychological, organizational and political.

355. Juvenile Justice Process

Fall, Winter, Spring, Summer. 4(4-0)
C J 320.

Variables related to the duties and responsibil-
ities of criminal justice practitioners working
with delinquents. Prevalent interdisciplinary
issues, ideas, principles and assumptions per-
taining to delinquency.

365. Corrections Process

Fall, Winter, Spring, Summer. 4(4-0)
C J 320.

An historical view of the development of meth-
ods of offender treatment. Operation of a correc-
tional system. The effect of institutionalization
upon individuals. Alternatives to incarceration.

375. Criminal Law Process

Fall, Winter, Spring, Summer. 4(4-0)
C J 320.

Administration of criminal justice: investiga-
tion, detection, arrest, search, seizure, charging,
adjudication, sentencing, probation, correc-
tions, parole. Constitutional safeguards and
legal controls on official action emphasized.

400H. Honors Study

Fall, Winter, Spring, Summer. 1 to 3
credits. May reenroll for a maximum of 6 credits.
Seniors or approval of instructor.

Individually selected programs of supervised
group or individual study dealing with some
phase of the criminal justice system.

401. Independent Study

Fall, Winter, Spring, Summer. 1 to 3
credits. May reenroll for a maximum of 6 credits.
C J 335, C J 355, C J 365, C J 375 or approval of
school.

Individual study of the various fields of emphasis
in criminal justice, under direct supervision of
appropriate faculty member.

409. Issues in Criminal Justice

Fall, Winter, Spring, Summer. 3 or 4
credits. May reenroll for a maximum of 15 cred-
its when different topics are taken. C J 335, C J
355, C J 365, C J 375 or approval of school.

Forum for course offerings on special issues in
criminal justice, by visiting instructors or regu-
lar faculty.

425. Women in Criminal Justice

Winter. 3(3-0) C J 320 or SOC 320 or
approval of school.

Women as offenders and victims. Women pro-
fessionals in criminal justice. Literature in crimi-
nology and victimology.

432G. Fundamentals of Traffic Law

(ED 429K.) Spring. 3(3-0) Interdepart-
mental with and administered by the Depart-
ment of Teacher Education.

Nature, function and application of traffic law
as it applies to the safe and efficient movement of
people and goods in a broadly conceived traffic
accident prevention program.

**434. Police Administration and
Management**

Fall, Winter. 4(4-0) C J 335, C J 375.

Principles of organization and management of a
police agency. Line and non-line functions, per-
sonnel administration, planning, budgeting,
goals and control.

435. Analysis of Police Operations

Spring. 3(3-0) C J 434 or approval of
school.

Analysis of police operations including patrol,
criminal investigation, staff services, and traffic
enforcement. Measurements of police produc-
tivity as related to goals. Principles of manage-
ment evaluation of police agency organization
and administration.

**440. Introduction to Highway Traffic
Administration**

Fall. 4(4-0)

Systems approach to highway traffic adminis-
tration emphasizing the interrelationships
among agencies having management responsi-
bilities and their accident prevention and loss
reduction countermeasures to combat system
failures. Future needs and alternatives.

**441. Police and Court Traffic
Administration**

Spring. 4(4-0)

Police and court traffic functions relative to
other police and court functions in the criminal
justice system. Systems approach to managing
traffic accident prevention programs.
Weaknesses, future needs and alternatives.

455. Analysis of Delinquency Programs

Fall, Winter. 4(4-0) C J 355 or
approval of school.

Social organization and administration of delin-
quency prevention programs, juvenile courts
and treatment agencies.

456. Juvenile Justice Case Analysis

Spring. 3(3-0) C J 355, C J 455.

The use of actual juvenile delinquent cases to
evaluate past and current practices and future
needs. The selections of therapeutic techniques
and strategies and their application to specific
types of clients.

**465. Analysis of Correctional
Operations**

Fall, Winter. 4(4-0) C J 335, C J 355,
C J 365, C J 375 or approval of school.

A critical analysis of existing institutions and
community corrections programs; administra-
tive methods of program implementation and
evaluation. Prevalent correctional operational
policies. Problems of effecting change.

**466. Correctional Administration and
Management**

Spring. 3(3-0) C J 365, C J 375, C J
465.

The application of principles of administration
and management to corrections including a sys-
temic examination of the impact of change on
the total correctional system and change resist-
ance from both external and internal environ-
ments.

472. Criminal Law

Fall, Winter. 4(4-0) C J 335, C J 355,
C J 365, C J 375 or approval of school.

Analyses and classifications of substantive com-
mon law and statutory criminal offenses;
defenses and other limitations on criminal
capacity.

473. Evidence and Proof of Crime

Spring. 3(3-0) C J 375.

Concepts of proof and logic; basic principles and
definitions of evidence law; review of criminal
investigation; chain of evidence; trial process;
presentation and admissibility; constitutional
issues.

480. Alcohol: A Social Dilemma

(C J 433.) Winter, Spring. 3(3-0) Sen-
ior majors, Criminal Justice majors or approval
of school. Interdepartmental with and adminis-
tered by the School of Social Work.

Substance abuse with emphasis on beverage
alcohol. Sociological, economic, psychological
and medical aspects of substance abuse; preven-
tion, assessment, treatment, rehabilitation.

485. Security Systems

Fall. 3(3-0) Majors or approval of
school.

Capabilities and limitations of security systems,
both public and private, with particular refer-
ence to crime and crime-related problems. Inter-
relationships between security and other
criminal justice agencies.

486. Loss Prevention

Spring. 4(4-0) Majors or approval of
school.

Operation and management of loss prevention
(asset protection). Programs in business, indus-
try, government and institutions. Particular
attention to theft control (employee dishonesty,
shoplifting, etc.) and fire protection.

490. Criminal Justice Practicum

Fall, Winter, Spring, Summer. 3 to 12
credits. May reenroll for a maximum of 12 cred-
its. C J 320; majors only.

Planned program of research internship, obser-
vation, study, and work in selected criminal jus-
tice agencies. Supplements classroom study with
participation in criminal justice systems of
United States and foreign nations.

**492. Methods of Criminal Justice
Research**

Fall, Winter, Spring, Summer. 4(4-0)
C J 335, C J 355, C J 365, C J 375 or approval of
school.

Elements of scientific perspective; analysis of
published reports to illustrate theory interacting
with practice. Conceptual frameworks, nego-
tiating access to and collection of data, design
choice, analytic techniques, and final reporting.

**493. Planned Change and Innovation in
Criminal Justice**

Winter. 3(3-0) C J 492 or approval of
school.

The processes by which change occurs. Mecha-
nisms which facilitate change. Utilization of
research in planned change. Research as related
to administrative decision making.

- 801. Independent Study**
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 6 credits. Majors or approval of school.
Individual research and writing in student's field of interest. Requires approval and direction by professor associated with major field of interest.
- 809. Special Issues in Criminal Justice**
Fall, Winter, Spring, Summer. 3 to 5 credits. May reenroll for a maximum of 15 credits when different topics are taken. Majors or approval of school.
Forum for study of issues not given continuous consideration in the graduate program.
- 810. Proseminar in Criminal Justice**
Fall. 3(3-0)
Recent literature in criminal justice administration and criminology; current developments and trends. Impact of research on operations in criminal justice.
- 811. Design and Analysis in Criminal Justice Research**
Fall. 4(4-0) C J 492.
Application of research methods to criminal justice problems, theory and hypothesis construction, design of survey instruments, logic of data analysis, tabular and descriptive techniques, computer usage in data analysis.
- 812. Criminal Justice Management Issues**
Winter. 3(3-0) Majors or approval of school.
Management requirements of the criminal justice process in transition. Problems and innovative concepts of criminal justice system development, decision theory, information needs, planning, personnel and budgeting.
- 813. Criminal Justice Personnel Systems Development**
Winter. 3(3-0)
Personnel administration approaches to improvement of criminal justice systems such as personnel administration by objectives, and systems analysis approach to human resource development models consonant with criminal justice systems evolution.
- 814. Fiscal Administration in Criminal Justice**
Spring. 3(3-0)
Transition from traditional budgeting to program planning and evaluation budgeting. Implications of treating budgeting as a tool in criminal justice administrative decision making. Practical experience in budget preparation and justification.
- 815. Seminar in Criminal Investigation**
Fall. 3(3-0) Majors or approval of school.
Seminar in investigative techniques; criminalistics; case studies; including discussion on quantum of proof in criminal investigations and probative value of physical evidence.
- 816. Seminar in Forensic Science**
Winter. 3(3-0) Majors or approval of school.
An investigation of the role of forensic science in the administration of justice; case studies; laboratory techniques; interpretation of proof.
- 817. Independent Study in Forensic Science**
Fall, Winter, Spring. 3(0-6) Majors or approval of school.
Directed laboratory work in forensic science.
- 818. Social Control, Criminal Justice and Community Relations**
Winter. 3(3-0) C J 318.
Authority and social control, advanced community relations and criminal justice, and socio-political aspects of criminal justice processes. Field study component required.
- 820. Crime, Criminal Behavior and Criminology**
Spring. 3(3-0) C J 320.
Classical and contemporary explanations for crime and criminal behavior related to criminal justice. Implications of differing theoretical concerns for the criminal justice system. Advanced criminology.
- 822. Historical and Comparative Criminal Justice**
Spring. 3(3-0) Majors or approval of school.
Criminal justice systems are examined on a global basis exclusive of the United States. Emphasis is placed on major different legal philosophies.
- 837. Managing Police Organizations**
Winter. 3(3-0) C J 812.
Administrative issues in directing, controlling and coordinating law enforcement agencies at supervisory levels. Applications of socio-behavioral concepts. Fundamental issues in police management.
- 838. Assessment of Police Policies and Operations**
Spring. 3(3-0) C J 837.
Critical analysis of recent police policy-related research. Operations research and policy analysis as applied to the deployment of human resources and policing strategies. Efficiency and effectiveness of operational information systems.
- 840. Highway Traffic Administration**
Winter. 3(3-0)
The Federal-state-local partnership in highway traffic administration. Laws, standards and policies regulating the accident prevention and loss reduction countermeasures of governmental agencies and private industry. Problems and needs.
- 855. Delinquency Prevention and Control**
Fall. 3(3-0)
Evaluation of primary and secondary delinquency prevention, control and treatment programs. Critical analysis of current major hypotheses, recent developments, and contributions by operational and academic sources.
- 865. Adult Corrections**
Fall. 3(3-0)
Traditional and contemporary correctional practices. Social, political, economic and organizational factors that determine correctional policies. Current trends in adult corrections.
- 866. Adult and Juvenile Correctional Program Management**
Winter. 3(3-0) C J 855 or C J 865.
Planning, organizing and operating adult and juvenile correctional programs on institutional and community levels.
- 867. Analysis and Evaluation of Prevention and Correctional Programs**
Spring. 3(3-0)
Analysis and evaluation of research relating to adult and juvenile prevention and correctional programming. Application of research design to program evaluation.
- 871. Law of Corrections**
Winter. 4(4-0) Majors or approval of school.
Constitutional limitations and impact of law on correctional practice. Due process, judicial sentencing, probation, prisoners' rights, parole grant, revocation of probation and parole.
- 872. Criminal Procedure**
Spring. 4(4-0) A law course.
Criminal procedure as applied to police and courts. Due process, Bill of Rights, right to counsel, search and seizure, confessions, bail, prosecution, guilty pleas, trial.
- 880. Planning in Criminal Justice**
Fall. 3(3-0) C J 492.
Models for planning. Empirical basis for organizational planning. Role of planning in operational administration. Assessment of current system capabilities.
- 881. Project and Program Implementation**
Winter. 3(3-0) C J 880 or approval of school.
Managerial strategies and factors involved in the effective implementation of projects and programs. Development and use of information and monitoring systems.
- 882. Evaluation Research in Criminal Justice**
Spring. 3(3-0) C J 880, C J 881.
The conduct and utilization of evaluative research in projects, programs and agencies. Strategies for conducting, interpreting and utilizing operational research.
- 885. Security Management**
Fall. 3(3-0) C J 485 or concurrently, or approval of instructor.
History of and legal bases for protective services. Organization and management of commercial and proprietary security units in business, industry, institutions and government. The systems approach to security.
- 890. Practicum**
Fall, Winter, Spring, Summer. 1(0-4) to 6(0-24) Majors or approval of school.
Planned program of research observation, study and work in selected criminal justice agencies. Designed to supplement classroom study with participation in domestic and foreign criminal justice systems.
- 892. Quantitative Methods in Criminal Justice Research.**
Winter. 4(4-0) C J 492, C J 811.
Views the relationship and application of statistical techniques to theory building and concept construction. Gives an overview of statistical methods with an emphasis on those most useful for research in criminal justice.
- 897. Policy Change Paper**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 4 credits. Majors or approval of school.
Development of plan for significant policy change and its implementation in a criminal justice agency.

**Descriptions — Criminal Justice
of
Courses**

899. Master's Thesis Research

Fall, Winter, Spring, Summer. 1 to 12 credits. May reenroll for a maximum of 12 credits. Majors or approval of school. Planned research and writing directed by student's thesis committee.

930. Seminar on Criminal Justice Systems

Winter. 3(3-0) Graduate students. Topical issues on the development, functioning, and interrelationships of components of criminal justice systems and how systemic coherence can be achieved within a democratic society.

990. Seminar in Criminal Justice and Criminology

Fall. 3 to 5 credits. Graduate students. Analysis of major research contributions to criminal justice and criminology.

992. Research Utilization and Application in Criminal Justice

Spring. 3(3-0) Majors or approval of school. Substantive and administrative problems of conducting research and existing attempts to solve these. Utilization of research in bringing about change in the criminal justice system. Methods of maximizing research utility.

210. Fundamentals of Soil Science

Fall, Winter. 4(3-2) CEM 141B. Not open to students with credit in CSS 202. Nature of soils and their relation to plant growth, water regimes, nutrient cycling, erosion, environmental quality, plant composition, animal health and world food production.

301. Forage Crops

Fall. 3(2-2) Sophomores. Distribution, morphology, identification, physiology, management and utilization of forage crops for hay silage, and pasture for livestock and for soil improvement and conservation.

318. Turfgrass Management

(CSS 418.) Fall. 3(3-0) CSS 210 or concurrently. Turfgrass management of golf courses, home lawns, parks, and athletic fields. Species identification and adaptation, routine and specialized cultural practices, pest identification and control.

350. Plant and Animal Genetics

(CSS 250.) Winter. 5(5-0) Juniors or approval of department. Fundamentals of modern genetics with particular focus on problems and application in agriculture and natural resources.

380. Ecology and Physiology of Agricultural Plants

Spring. 3(3-0) BOT 301; CSS 101 or HRT 101. Interrelationships of physiological processes and environmental manipulation for higher yield of agricultural plants.

390. Soil Conservation and Land Use

Winter. 3(3-0) CSS 210. Concepts of soil erosion by water and wind and methods for soil conservation including control of erosion and sedimentation. Interpretation of soil properties for land use decisions.

402. Principles of Weed Control in Field Crops

Fall. 4(3-2) CEM 143, BOT 301. Principles underlying weed control practices for agronomic crops. Factors involved in mechanical, chemical and biological control and basic physiological aspects of herbicide applications.

406. Crop Improvement and Seed Production

Winter. 4(3-2) Practical methods of crop improvement, seed production, storing, cleaning, packing, and distribution, seed certification of small grains, legumes, corn, beans, potatoes, visits to seed agencies and seed farms.

408. Principles of Plant Breeding

Winter. 4(3-2) CSS 250. Interdepartmental with the Department of Horticulture. Application of genetics and other sciences to breeding and improvement of agronomic and horticultural crops.

411. Independent Study

Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 8 credits if different problem is taken. Approval of department. Individual work on a field, laboratory or library research problem of special interest to the student and supervised by faculty.

412. Topics in Agronomy

Fall, Winter, Spring, Summer. 2(2-0) or 3(3-0) May reenroll for a maximum of 9 credits if different topics are taken. Approval of department. Topics will be selected from crop production, crop physiology, turfgrass management, organic soils, turfgrass soils, soil fertility and genetic analysis.

414. Turfgrass Soil Management

Fall. 3(2-2) CSS 318. Fertility and pH control of turf soils; drainage; irrigation programming; cultivation; topdressing; soil amendments; construction of specialized soils.

416. Principles of Turfgrass Culture

Winter. 3(3-0) CSS 318. Growth and development of the turfgrass plant as related to turfgrass management practices.

417. Turfgrass Seminar

Fall. 1(2-0) CSS 318. Seminars by leaders of the turfgrass industry; golf course design and maintenance, specialized equipment, and research developments.

419. Management of Turfgrass Pests

Fall. 4(3-2) CSS 318 or concurrently. Chemical, biological and cultural methods of managing weed, disease, and insect pests of turfgrass.

420. Seminar

Winter. 1(1-0) May reenroll for a maximum of 4 credits.

424. Forest Soils

Spring. 3(2-3) CSS 210; Juniors or approval of department. Forestry majors: FOR 305, FOR 402, FOR 425, FOR 429 concurrently. Interdepartmental with and administered by the Department of Forestry. Interrelationships of forest site and the growth of trees. Properties, classification, inventory, productivity and management of forest soils. Effects of silvicultural and forest management practices on the soil.

425. Forest Soils Laboratory

Spring. 1(0-3) CSS 210; FOR 305, FOR 402, FOR 424, FOR 429 concurrently. Interdepartmental with and administered by the Department of Forestry. Exercises and field trips relating to properties, classification, inventory, productivity and management of forest soils. Extended field trips required.

426. Microbial Ecology

Spring. 3(3-0) MPH 301 or MPH 303, MPH majors must enroll concurrently in MPH 426A. Interdepartmental with and administered by the Department of Microbiology and Public Health. Microbial activities in natural ecosystems; their association with plants and animals, and their transformations of carbon, nitrogen and sulfur in soil and aquatic habitats.

426A. Microbial Ecology Recitation

Spring. 1(1-0) MPH 426 concurrently. Interdepartmental with and administered by the Department of Microbiology and Public Health. Quantitative aspects of microbial ecology.

**CROP AND SOIL
SCIENCES**

CSS

**College of Agriculture and Natural
Resources**

101. Crop Science

Fall. 3(3-0) Principles of identification, adaptation, management, and utilization of field crops for food and fiber. Fundamentals of crop management, breeding, weed control, crop quality, and tropical crops in world agriculture.

202. Soil and Our Environment

Spring. 3(3-0) Not open to students with credit in CSS 210. Non-majors only. Role of soil in growing plants, water use and conservation, nutrient cycling, fertilizers, environmental quality, animal health, food-population dilemma.

204. Corn and Soybean Production

Fall. 2(2-0) CSS 101, CSS 202 or CSS 210. Topics related to increased efficiency in corn and soybean production; time of planting; irrigation scheduling; fertility; and weed, insect and disease control.

205. Navy Bean and Sugarbeet Production

Winter. 2(2-0) CSS 101, CSS 202 or CSS 210. Navy bean and sugarbeet production and marketing in Michigan. Presentations by specialists from within the University and the navy bean and sugarbeet industries.

206. Small Grain Production

Winter. 2(2-0) CSS 101, CSS 202 or CSS 210. Small grain production, use, and marketing in Michigan and the world.