

Descriptions – Computer Science

of

Courses

- 831. Theory of Formal Languages I**
Fall. 3(3-0) CPS 322 or approval of department.
Definition of formal languages; acceptors and grammars; regular, linear and context free languages; closure properties.
- 832. Theory of Formal Languages II**
Winter. 3(3-0) CPS 831.
Context sensitive languages; derivation restricted grammars; semantics of formal languages.
- 841. Artificial Intelligence and Adaptive Systems I**
Winter. 4(4-0) CPS 300, STT 441.
Foundations of heuristic methods; syntactic means-end analysis; semantic means-end analysis; adaptive systems.
- 842. Artificial Intelligence and Adaptive Systems II**
Spring. 4(4-0) CPS 841.
Computer representation of information from natural languages; representation of two and three dimensional environments; theory of design of robots; future trends.
- 863. Structured Multiprogramming Systems**
Spring. 3(3-0) CPS 313; CPS 322 or concurrently.
Advanced software techniques for computer operating systems. Term project to design, implement and analyze an operating system using quality structured program construction.
- 876. Performance Measurement Techniques**
Fall. 3(3-0) CPS 313, CPS 322, STT 441.
Performance evaluations on computer systems, evaluation of the central processor. Systems analysis, simulation, programmed measurement, and instrumental measurement techniques. Case studies.
- 884. Large Data Base Theory**
Summer. 3(3-0) CPS 313, CPS 452, or approval of department.
Data base management constituent parts; data definition, data manipulation, data retrieval and report generation. Hierarchical, network and relational data base models. Schemas, subschemas and access methods. Analytic and theoretical treatment.
- 899. Master's Thesis Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
- 906. Advances in Pattern Recognition**
Fall. 3(3-0) CPS 805, CPS 806.
Current research topics in pattern recognition, exploratory data analysis, syntactic pattern recognition and digital image processing; practical applications of pattern recognition methodology.
- 911. General Automata Theory I**
Fall of odd-numbered years. 3(3-0) CPS 423 or SYS 827 or approval of department. Interdepartmental with Electrical Engineering.
Characterization of machines and programs as automata; mathematical decomposition of finite automata.
- 912. General Automata Theory II**
Winter of even-numbered years. 3(3-0) CPS 911. Interdepartmental with Electrical Engineering.
Reliability and redundancy of finite automata. Probabilistic sequential machines. Languages definable by probabilistic and deterministic automata. Axioms for equivalence of regular expressions.
- 913. General Automata Theory III**
Spring of even-numbered years. 3(3-0) CPS 912. Interdepartmental with Electrical Engineering.
Degrees of difficulty of computation. Models of parallel computation. Iterative automata.
- 921. Advanced Computer Systems I**
Fall of odd-numbered years. 3(2-3) CPS 827; graduate course in operating systems. Interdepartmental with Electrical Engineering.
Models of single and multiple processors, their computational power, and measures of performance. Interconnection networks, data driven machines, and pipelines.
- 922. Advanced Computer Systems II**
Winter of even-numbered years. 3(2-3) CPS 921. Interdepartmental with Electrical Engineering.
Design and characterization of parallel algorithms. Matching of algorithms with appropriate hardware configurations. Programming languages which support parallel computation.
- 944. Theory of Algorithms**
Summer. 3(3-0) CPS 832 or CPS 912.
Formulation of computation concept and algorithm verification. Topics included are finite and infinite acceptors, recursive functions, program verification, decision problems, flowchart schemas, and fixpoint theory of programs.
- 999. Doctoral Dissertation Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
- 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.
- 320. Criminology**
(235.) Fall, Winter, Spring, Summer. 4(4-0) SOC 241 or C J 110 or approval of school. Interdepartmental and jointly administered with the Department of Sociology.
Crime analysed from sociological perspective: meaning of 'crime,' crime statistics, and measurement, 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 justice 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, sociological, psychological, organizational and political.
- 355. Juvenile Justice Process**
Fall, Winter, Spring, Summer. 4(4-0) C J 320.
Variables related to the duties and responsibilities of criminal justice practitioners working with delinquents. Prevalent interdisciplinary issues, ideas, principles and assumptions pertaining to delinquency.
- 365. Corrections Process**
Fall, Winter, Spring, Summer. 4(4-0) C J 320.
An historical view of the development of methods of offender treatment. Operation of a correctional 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: investigation, detection, arrest, search, seizure, charging, adjudication, sentencing, probation, corrections, 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 credits 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 regular faculty.

429K. Fundamentals of Traffic Law

Spring. Summer of odd-numbered years. 3(3-0) Interdepartmental with and administered by the College of 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.

433. Alcohol: A Social Dilemma

Winter. 3(3-0) Juniors or approval of school. Interdepartmental with the College of Education.

Substance abuse with emphasis on beverage alcohol. Sociological, psychological and medical aspects. Prevention, treatment, rehabilitation.

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, personnel 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 productivity as related to goals. Principles of management evaluation of police agency organization and administration.

440. Introduction to Highway Traffic Administration

Fall. 4(4-0)

Systems approach to highway traffic administration emphasizing the interrelationships among agencies having management responsibilities 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 delinquency 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; administrative 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 systemic examination of the impact of change on the total correctional system and change resistance from both external and internal environments.

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 common 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.

485. Security Systems

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

Capabilities and limitations of security systems, both public and private, with particular reference to crime and crime-related problems. Interrelationships 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, industry, government and institutions. Particular attention to theft control (employee dishonesty, shoplifting, etc.) and fire protection.

487. Comparative Internal Security

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

Deviant and protest politics as security problems. Alternative approaches to the control of subversive activities, assessed in terms of liberty and security. Limited comparisons with other systems. Terrorism and security.

490. Criminal Justice Practicum

Fall, Winter, Spring, Summer. Variable credit. May reenroll for a maximum of 12 credits. C J 320; majors only.

Planned program of research internship, observation, study, and work in selected criminal justice 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, negotiating 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. Mechanisms 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.

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of
Courses**

**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.

**825. Criminal Justice Educational
Programming**

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

Designed for students preparing for careers as criminal justice educators. Discussion of issues, administrative problems, and curricula for criminal justice programs.

826. Teaching Internship

Fall, Winter. 4(4-0) Majors or approval of school.

Assumption of complete responsibility for teaching a course in a criminal justice program. Guidance in planning lesson content and evaluating instruction provided. Attendance at a series of associated seminars required.

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 manpower deployment 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.

**874. Law of Administrative
Procedure**

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

Powers and procedures of administrative agencies. Procedural issues and legal basis. Problems connected with administrative processes not subject to effective judicial or legislative supervision. Discretion, judicial review of administrative action and jurisdiction.

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.

The organization and management of security units, in industry, businesses, government, institutions. The protection of manpower, facilities, and other assets. Administrative, legal and technical issues.

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.

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.