531. Theory of Formal Languages I
Fall. 3(0-0) CPS 322 or approval of department.
Description: formal languages; automata and grammars; regular, linear and context free languages; closure properties.

532. Theory of Formal Languages II
Winter. 3(3-0) CPS 331
Description: Context sensitive languages; derivation restricted grammars; semantics of formal languages.

541. Artificial Intelligence and Adaptable Systems I
Winter. 4(4-0) CPS 300, STT 441
Foundations of heuristic methods; sytematic means-end analysis; semantic means-end analysis; adaptive systems.

542. Artificial Intelligence and Adaptable Systems II
Spring. 4(0-0) CPS 341
Description: Computer representation of information from natural languages; representation of two and three dimensional environments; theory of design of robots; future trends.

563. Structured Multiprogramming Systems
Spring. 3(0-0) 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.
Description: 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(0-0) CPS 405, CPS 406
Description: 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.
Description: 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.
Description: 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.
Description: Degrees of difficulty of computation. Models of parallel computation. Iterative automata.

921. Advanced Computer Systems I
Fall of odd-numbered years. 3(3-0) 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(3-0) CPS 921. Interdepartmental with Electrical Engineering.
Description: 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 822 or CPS 812
Description: Formulation of computation concept and algorithm verification. Topics included are finite and infinite accepters, 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.

Criminal Justice

C J

College of Social Science

110. Introduction to Criminal Justice
Fall, Winter, Spring, Summer. 3(3-0)
Description: 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.
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 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, 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 431 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 effect on traffic production 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 335, C J 455.
The use of actual juvenile delinquency cases to evaluate past and current practices and future needs. The selection 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
Fall, Winter. 3(3-0) C J 365, C J 375, C J 465.
The application of principles of administration and management to corrections including a systematic 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.

496. Criminal Justice Practicum
Fall, Winter, Spring. Winter. 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. Supplemental 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 choices, 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.

501. Independent Study
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 15 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.

509. Special Issues in Criminal Justice
Fall. Winter. 3(3-0) C J 431 or approval of school.
Forum for study of issues not given continuous consideration in the graduate program.

510. Proseminar in Criminal Justice
Fall. 3(3-0)
Recent literature in criminal justice administration and criminology; current developments and trends. Impact of research on criminal justice.

511. 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.

512. 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.

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; criminological case studies; including discussion on the 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) CJ 318.  
Authority and social control, advanced community relations and criminal justice, and sociopolitical aspects of criminal justice processes. Field study component required.

820. Crime, Criminal Behavior and Criminology  
Spring. 3(3-0) CJ 320.  
Classical and contemporary explanations for crime and criminal behavior related to criminal justice. Implications of differing theoretical concepts for the criminal justice system. Advanced criminology.

821. 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) CJ 812.  
Administrative issues in directing, controlling and coordinating law enforcement agencies at supervisory levels. Applications of sociobehavioral concepts. Fundamental issues in police management.

838. Assessment of Police Policies and Operations  
Spring. 3(3-0) CJ 837.  
Critical analysis of recent police policy-related research. Operations research and policy analysis 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) CJ 855 or CJ 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 practices. 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 procedures as applied to police and courts. Due process; Bill of Rights; right to counsel; search and seizure; confessions; bail, prosecution, guilty plea, 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) CJ 492.  

881. Project and Program Implementation  
Winter. 3(3-0) CJ 890 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) CJ 880 or CJ 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) CJ 485 or concurrently, 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. 1 to 4 credits. Graduate students.  
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) CJ 482, CJ 811.  
Views the relationship and application of statistical techniques to theory development 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.

900. Seminar on Criminal Justice Systems  
Fall. 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.