

## Computer Information Systems in Criminal Justice and Public Administration

Bachelor of Science

The major in Computer Information Systems in Criminal Justice and Public Administration focuses on software development, information systems design and the modeling of public systems, using the techniques of operations research. In addition to fulfilling basic requirements in computer science, operations research and mathematics, students must complete an applied specialization in computer applications in either criminal justice or public administration.

**Credits required.** 42

**Prerequisites.** MAT 141\*, 204, and 241, or 242. MAT 141, 241, or 242 fulfill the General Education requirement in Mathematics and Quantitative Reasoning.

\* Students with a strong high school mathematics background that includes trigonometry and pre-calculus may be exempt from MAT 141. In such cases, consultation with the Department of Mathematics and Computer Science is suggested.

**Coordinator.** Professor Shaobai Kan, Department of Mathematics and Computer Science (646.557.4866, skan@jjay.cuny.edu).

**Advisors.** Department of Mathematics and Computer Science Professors:

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**Senior-level requirement.** A senior seminar and an internship in the specialization selected by the student are required.

### COURSES

#### PART ONE. COMPUTER FOUNDATION COURSES

CREDITS: 18

##### Required

MAT 271 Introduction to Computing and Programming\*

MAT 272 Object-Oriented Computing

MAT 373 Advanced Data Structures

MAT 374 Programming Languages

MAT 375 Operating Systems

MAT 377 Computer Algorithms

#### PART TWO. OPERATIONS RESEARCH REQUIREMENT

CREDITS: 6

##### Required

MAT 323 Operations Research Models I

MAT 324 Operations Research Models II

#### PART THREE. MATHEMATICS, STATISTICS AND COMPUTER ELECTIVES

CREDITS: 6

**Select two.** Early consultation with a major coordinator is recommended.

##### Mathematics Electives

MAT 231 Linear Programming

MAT 243 Calculus III

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Continued

MAT 301 Probability and Mathematical Statistics I

MAT 302 Probability and Mathematical Statistics II

MAT 310 Linear Algebra

MAT 351 Introduction to Ordinary Differential Equations

MAT 352 Applied Differential Equations

MAT 371 Numerical Analysis

MAT 410 Abstract Algebra

## Computer Electives

ECO 275 Games, Decisions and Strategy

MAT 265 Data Processing Mastery

MAT 270/SEC 270 Security of Computers and their Data

MAT 273 Graphics and Interface Programming

MAT 276 Systems Analysis and Design

MAT 277 Computers for Administrative Decision Making

MAT 278 Software Applications for Office Management

MAT 376 Artificial Intelligence

MAT 379 Computer Networking

## PART FOUR. APPLIED SPECIALIZATION

CREDITS: 12

**Select one sequence:** Public Administration or Criminal Justice

### *Public Administration*

#### Required

PAD 140 Introduction to Public Administration (formerly PAD 240)

PAD 400 Quantitative Problems in Public Administration

PAD 404 Practicum in Public Administration\*\*

#### Select one

PAD 340 Planning and Policy Analysis

PAD 343 Administration of Financial Resources

### *Criminal Justice*

#### Required

MAT 400 Quantitative Problems in Criminal Justice

MAT 404 Internship in Management Information Systems\*\*

MAT 470 Database Systems in Criminal Justice

#### Select one

MAT 270/SEC 270 Security of Computers and their Data

MAT 279 Data Communications and the Internet

**CREDITS REQUIRED FOR THE MAJOR: 42**

\* Required of all students unless they have sufficient experience with at least one computer language. Qualified individuals may substitute one computer course from Part Three with the approval of the chairperson of the Department of Mathematics and Computer Science.

\*\*Students with appropriate experience, such as individuals who are working with criminal justice agencies and already possess computer experience, may be exempt from the internship with the approval of the chairperson of the Department of Mathematics and Computer Science.