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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- Peter Shenkin (212.237.8925, pshenkin@jjay.cuny.edu)

Department of Public Management Professors:

- Warren Benton (212.237.8089, nbenton@jjay.cuny.edu)
- Maria D'Agostino (212.237.8068, mdagostino@jjay.cuny.edu)

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

### COURSES

#### PART ONE. COMPUTER FOUNDATION COURSES

<table>
<thead>
<tr>
<th>Required</th>
<th>CREDITS: 18</th>
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<tbody>
<tr>
<td>MAT 271 Introduction to Computing and Programming*</td>
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<td>MAT 272 Object-Oriented Computing</td>
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<td>MAT 373 Advanced Data Structures</td>
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<td>MAT 374 Programming Languages</td>
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<td>MAT 375 Operating Systems</td>
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<td>MAT 377 Computer Algorithms</td>
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#### PART TWO. OPERATIONS RESEARCH REQUIREMENT

<table>
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<tr>
<th>Required</th>
<th>CREDITS: 6</th>
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<tbody>
<tr>
<td>MAT 323 Operations Research Models I</td>
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<tr>
<td>MAT 324 Operations Research Models II</td>
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#### PART THREE. MATHEMATICS, STATISTICS AND COMPUTER ELECTIVES

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

<table>
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<th>Mathematics Electives</th>
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<tr>
<td>MAT 231 Linear Programming</td>
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<tr>
<td>MAT 243 Calculus III</td>
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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.