Criminal Justice Data Analytics (CJDA)

Program Director: Darren Wheelock, Ph.D.
Criminal Justice and Data Analytics website (https://www.marquette.edu/grad/programs-criminal-justice-data-analytics.php)

Degree Offered
Master of Science, Plan B only

Program Description
The master of science in criminal justice data analytics (CJDA) is designed to develop graduates with the skills and knowledge to harness data and employ analytical tools effectively to inform ethical planning, decision making, and problem solving in criminal justice agencies and related organizations. The program also offers an accelerated 5-year bachelor's and master's degree option.

Learning Outcomes
Students completing the master of science in criminal justice data analytics will be able to:

1. Identify crime analysis opportunities that can be ethically addressed through an understanding of crime, criminal offending, the operations of criminal justice organizations, and the US criminal justice system.
2. Design and implement strategies for analyzing crime data using appropriate methods, tools, and datasets.
3. Analyze crime data to create actionable information, and use it to establish priorities, make decisions, and solve problems aligning with the ethics, needs, and values of individuals, communities, and stakeholders.
4. Display and explain the results of criminal justice data analytics projects using effective written, graphic, and verbal tools and techniques.
5. Use advanced data processing tools incorporating regulatory, data governance, master data management, data profiling, parallel and distributed processing best practices.

Prerequisites for Admission
Applicants should have:

• A baccalaureate degree from an accredited university in criminal justice, a related social science, data science, or other relevant educational experience with a cumulative GPA of at least 3.200.
• Prospective students are strongly encouraged to have taken an introduction to computer programming class (e.g., COSC 1010 Introduction to Software Development) before the start of the program.
• A grade of B or above in an undergraduate statistics course (e.g., SOCI 2060 Social Statistics or PSYC 2001 Psychological Measurements and Statistics, or equivalent).
• A GPA of 3.200 or higher in undergraduate upper-division course work.

Application Deadlines
Admission to the program is made on a rolling basis, but priority consideration is given to applicants who apply by February 15th. The deadlines for financial aid consideration are February 15 for the following fall term and November 15 for the following spring term.

Application requirements
Applicants must submit, directly to the Graduate School:

1. A completed application form and fee online (https://www.marquette.edu/grad/future-apply.php).
2. Copies of all college/university transcripts except Marquette.¹
3. Official GRE scores. Waived if cumulative GPA is 3.200 or higher.
4. A statement of purpose describing reasons for pursuing an advanced degree and career goals.
5. Two recommendation letters from professors familiar with student’s academic achievements and qualifications.
6. (For international applicants only) a TOEFL score or other acceptable proof of English proficiency.

¹ Upon admission, final official transcripts from all previously attended colleges/universities, with certified English translations if original language is not English, must be submitted to the Graduate School within the first five weeks of the term of admission or a hold preventing registration for future terms will be placed on the student’s record.
Criminal Justice Data Analytics Master’s Requirements

The master of science in criminal justice data analytics (CJDA) is an interdisciplinary program designed to utilize the existing data science program and expertise in the criminology and law studies program. Computer science (COSC) courses compose the program’s data analytics core and provide instruction and training in computer science, data science and managing/manipulating large data sets. Criminology and law studies (CRLS) courses provide the context for applying the skills developed in the data analytics core to criminal justice related fields. The CRLS course work also includes a practicum, which provides students with an opportunity to analyze criminal justice data in collaboration with local agencies and organizations to examine evidence-based decisions and their ethical implications.

Program Requirements

Students must complete a total of 30 credit hours of course work for the master of science degree in criminal justice data analytics. This interdisciplinary program is composed of 15 credit hours in data analytics courses and 15 credit hours in criminology and law studies courses, including the practicum. The practicum’s culminating experience provides the student an opportunity to work independently with a local non-profit or government agency through a community-engaged learning experience.

Required Course work

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>CRLS 5700</td>
<td>Ethics in Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>CRLS 6100</td>
<td>Advanced Social Statistics</td>
<td>3</td>
</tr>
<tr>
<td>CRLS 6200</td>
<td>Introduction to Geographic Information Systems (GIS)</td>
<td>3</td>
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<tr>
<td>CRLS Elective - choose one of the following:</td>
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<td>3</td>
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<tr>
<td>CRLS 5000</td>
<td>Criminological Theory</td>
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<tr>
<td>CRLS 5350</td>
<td>Neighborhoods and Crime</td>
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<tr>
<td>CRLS 5360</td>
<td>Crime Mapping</td>
<td></td>
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<tr>
<td>COSC 5500</td>
<td>Visual Analytics</td>
<td>3</td>
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<tr>
<td>COSC 5820</td>
<td>Ethical and Social Implications of Data</td>
<td>3</td>
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<tr>
<td>COSC 6510</td>
<td>Business Intelligence</td>
<td>3</td>
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<tr>
<td>COSC 6520</td>
<td>Business Analytics</td>
<td>3</td>
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<tr>
<td>or COSC 6540</td>
<td>Data Analytics</td>
<td>3</td>
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<td>COSC 6570</td>
<td>Data at Scale</td>
<td>3</td>
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<tr>
<td>or COSC 6060</td>
<td>Parallel and Distributed Systems</td>
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<td>or COSC 6380</td>
<td>Advanced Database Systems</td>
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<tr>
<td>CRLS 6975</td>
<td>Criminal Justice Data Analytics Practicum</td>
<td>3</td>
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Total Credit Hours: 30

1 COSC 6540 Data Analytics recommended for students with a programming background
2 COSC 6060 Parallel and Distributed Systems or COSC 6380 Advanced Database Systems recommended for students with a computer science background.

MASTER’S DEGREE WITH THE DATA SCIENCE CERTIFICATE

The Department of Computer Science offers a data science certificate. If a criminal justice data analytics master’s student chooses to also earn the certificate, admission to both programs may be concurrent. The same courses may be used to satisfy the requirements of the master’s program and certificate, as outlined in the university bulletin for each program. Students are expected to be admitted into all programs they intend to complete, although course work completed prior to admission may be allowed to apply toward program requirements. Certificates must be approved individually via the curriculum approval process as Title IV aid eligible in order for students in any of these programs to be eligible to apply for federal financial aid.

Details on the data science certificate can be found in this bulletin.

ACCELERATED DEGREE PROGRAM

The accelerated degree program (ADP) is designed to give Marquette University undergraduate students a more efficient means to obtain a master of science degree in criminal justice data analytics. Interested Marquette students in their junior year (or equivalent) must meet the following criteria in order to apply for the ADP:

- Students must have a minimum cumulative undergraduate GPA of 3.200.
- Students must have completed at least 18 credits of CRLS course work (6 courses) by the end of their junior year.
Undergraduates participating in this program are granted early admission to the Graduate School and are allowed to take specific graduate-level courses during their senior year. Candidates for admission should submit transcripts and two letters of recommendation, but need not submit GRE scores. Candidates for admission to this program should notify the department director of graduate studies of their intentions.