DATA ANALYTICS, BS  
(SCHOOL OF INFORMATION STUDIES)

There is data all around us. Businesses are looking to hire people who can manage that data, analyze it, and use it for more effective decision making. The Bachelor of Science in Data Analytics (BSDA) is designed for you to learn those skills.

The Bachelor of Science in Data Analytics is a special degree program that includes courses from the College of Letters and Science, the School of Information Studies, and other UWM colleges to provide a solid general education as well as an interdisciplinary approach to data analytics.

The BS in Data Analytics at UWM is unique because its goal is to train students to practice data analytics in a field they are most passionate about. If you enroll in this program, you will take foundational classes to build core data analytics skills, then specialize in data analytics for business, health, information science, natural sciences, social sciences, or geographic information sciences.

The career prospects for individuals with data analytics degrees are very positive. Data analytics skills are being used not only in industries that are obviously oriented toward using data, like information technology, sciences and business, but also in fields that more recently have begun to take full advantage of their data resources, like agriculture, atmospheric sciences, environmental sciences, geography, and healthcare.

Requirements

The B.S. in Data Analytics requires 33 credits in General Education courses, 16 credits in Foundation courses, 33 credits in Core courses, 24 credits in a Specialization, and electives to reach a total of 120 credits.

General Education Competency and Breadth Courses (http://catalog.uwm.edu/policies/undergraduate-policies/#bachelorsdegeregeneraleducation)

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<th>Code</th>
<th>Title</th>
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Foundation Courses

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Core Courses

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</table>

Requirements

1. Computer Literacy 1 and 2 can be satisfied by COMPSCI 250 and COMPSCI 251.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>INFOST 440</td>
<td>Web Application Development</td>
<td>3</td>
</tr>
<tr>
<td>BIO SCI 502</td>
<td>Introduction to Programming and Modeling in Ecology and Evolution</td>
<td>3</td>
</tr>
<tr>
<td>COMPSCI 351</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>MTHSTAT 216</td>
<td>Introduction to Statistical Computing and Data Science</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 325</td>
<td>Introduction to Data Science with R, Python, and GIS (4 credits)</td>
<td>3</td>
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### Databases

**Choose one of the following (3 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS ADM 434</td>
<td>Data Base Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFOST 410</td>
<td>Database Information Retrieval Systems</td>
<td>3</td>
</tr>
<tr>
<td>HCA 537</td>
<td>Health Information Technology and Management</td>
<td>3</td>
</tr>
<tr>
<td>COMPSCI 557</td>
<td>Introduction to Database Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

### Analytics and Big Data/Data Mining

**Choose two of the following (6 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS ADM 336</td>
<td>Enterprise Systems and Data Analytics</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 536</td>
<td>Business Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>INFOST 582</td>
<td>Introduction to Data Science</td>
<td>3</td>
</tr>
<tr>
<td>INFOST 687</td>
<td>Data Analysis for Data Science</td>
<td>3</td>
</tr>
<tr>
<td>INFOST 691</td>
<td>Special Topics in Information Science: '(Computer Forensics' is eligible. Other topics offered in a specific offering of this course must be approved for the degree by the Director of the Program.)</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ATM SCI 600</td>
<td>Data Analytics</td>
<td>3</td>
</tr>
<tr>
<td>COMPSCI 411</td>
<td>Machine Learning and Applications</td>
<td>3</td>
</tr>
<tr>
<td>COMPSCI 422</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>COMPSCI 425</td>
<td>Introduction to Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>ECON 411</td>
<td>Economic Forecasting Methods</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 215</td>
<td>Introduction to Geographic Information Science</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 525</td>
<td>Geographic Information Science (4 credits)</td>
<td>3</td>
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### Visualization

**Choose one of the following (3 credits)**

<table>
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<th>Course Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>BUS ADM 438</td>
<td>Information Technology Management Topics:</td>
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<tr>
<td>INFOST 370</td>
<td>Data Analysis and Visualization for the Information Professional</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 405</td>
<td>Cartography (4 credits)</td>
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### Statistics

**Choose two of the following (6 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MTHSTAT 361</td>
<td>Introduction to Mathematical Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>MTHSTAT 362</td>
<td>Introduction to Mathematical Statistics II</td>
<td>3</td>
</tr>
<tr>
<td>ATM SCI 500</td>
<td>Statistical Methods in Atmospheric Sciences</td>
<td>3</td>
</tr>
<tr>
<td>ECON 413</td>
<td>Statistics for Economists</td>
<td>3</td>
</tr>
<tr>
<td>ECON 513</td>
<td>Introduction to Econometrics</td>
<td>3</td>
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</tbody>
</table>

### Ethics

**Choose one of the following (3 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BUS ADM 530</td>
<td>Privacy and Information Security for Business</td>
<td>3</td>
</tr>
<tr>
<td>INFOST 661</td>
<td>Information Ethics</td>
<td>3</td>
</tr>
<tr>
<td>HS 311</td>
<td>Law and Ethics for Healthcare Professionals</td>
<td>3</td>
</tr>
<tr>
<td>COMPSCI 395</td>
<td>Social, Professional, and Ethical Issues</td>
<td>3</td>
</tr>
<tr>
<td>PHILOS 237</td>
<td>Technology, Values, and Society</td>
<td>3</td>
</tr>
<tr>
<td>SOCIOL 327</td>
<td>Data, Technology, and Society</td>
<td>3</td>
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</table>

### Capstone/Fieldwork/Thesis

**Choose one of the following (3 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BUS ADM 389</td>
<td>Real Estate Internship</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 394</td>
<td>Human Resources Management Internship</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 396</td>
<td>Finance Internship</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 397</td>
<td>Marketing Internship</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 398</td>
<td>Supply Chain &amp; Operations Management Internship</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 400</td>
<td>Accounting Professional Internship</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 439</td>
<td>Information Technology Management Professional Internship</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 459</td>
<td>Finance Professional Internship</td>
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<tr>
<td>BUS ADM 469</td>
<td>Marketing Professional Internship</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 479</td>
<td>Supply Chain &amp; Operations Management Professional Internship</td>
<td>3</td>
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<tr>
<td>BUS ADM 494</td>
<td>International Business Internship</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 534</td>
<td>Information Technology Practicum</td>
<td>3</td>
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<tr>
<td>BUS ADM 600</td>
<td>Management Analysis</td>
<td>3</td>
</tr>
<tr>
<td>INFOST 408</td>
<td>Nonprofit Information Technology</td>
<td>3</td>
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<tr>
<td>INFOST 490</td>
<td>Senior Capstone</td>
<td>3</td>
</tr>
<tr>
<td>INFOST 495</td>
<td>Information Internship</td>
<td>3</td>
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<tr>
<td>COMPSCI 595</td>
<td>Capstone Project</td>
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<tr>
<td>ECON 489</td>
<td>Internship in Economics, Upper Division</td>
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<tr>
<td>MTHSTAT 489</td>
<td>Internship in Mathematical Statistics, Upper Division</td>
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<tr>
<td>MATH 599</td>
<td>Capstone Experience (1 credit)</td>
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<tr>
<td>GEOG 600</td>
<td>Perspectives on Geography</td>
<td>3</td>
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<tr>
<td>GEOG 608</td>
<td>GIS/Cartography Internship</td>
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### Total Credits:

33

### Electives in Different Specializations (24 credits in each specialization)

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>BUS ADM 532</td>
<td>Web Development for Open Business Systems</td>
<td>3</td>
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<tr>
<td>BUS ADM 533</td>
<td>Introduction to Connected Systems for Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS ADM 536</td>
<td>Business Intelligence</td>
<td>3</td>
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<tr>
<td>Course Code</td>
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<tr>
<td>BUS ADM 537</td>
<td>Enterprise Systems Concepts and Issues</td>
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<tr>
<td>BUS ADM 539</td>
<td>Web Application Server Development</td>
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<tr>
<td>BUS ADM 540</td>
<td>ERP Certification</td>
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<tr>
<td>BUS ADM 370</td>
<td>Introduction to Supply Chain Management</td>
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<tr>
<td>BUS ADM 436</td>
<td>Systems Analysis and Design</td>
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<tr>
<td>BUS ADM 478</td>
<td>Supply Chain Analytics</td>
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<tr>
<td>BUS ADM 571</td>
<td>Quality and Six Sigma Tools</td>
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<tr>
<td>BUS ADM 360</td>
<td>Principles of Marketing</td>
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<tr>
<td>BUS ADM 462</td>
<td>Marketing Research</td>
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<tr>
<td>BUS ADM 350</td>
<td>Principles of Finance</td>
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<tr>
<td>BUS ADM 450</td>
<td>Intermediate Finance</td>
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</tr>
<tr>
<td>BUS ADM 451</td>
<td>Investment Finance</td>
<td></td>
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<tr>
<td>BUS ADM 457</td>
<td>Financial Modeling</td>
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<tr>
<td>BUS ADM 458</td>
<td>Venture Finance</td>
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<tr>
<td>BUS ADM 300</td>
<td>Career and Professional Development</td>
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**Information Science and Technology** 24

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>INFOST 240</td>
<td>Web Design I</td>
</tr>
<tr>
<td>INFOST 315</td>
<td>Knowledge Organization for Information Science and Technology</td>
</tr>
<tr>
<td>INFOST 320</td>
<td>Web Design II</td>
</tr>
<tr>
<td>INFOST 325</td>
<td>Information Security I</td>
</tr>
<tr>
<td>INFOST 340</td>
<td>Introduction to Systems Analysis</td>
</tr>
<tr>
<td>INFOST 350</td>
<td>Introduction to Application Development (If not used already as part of the Foundations requirement)</td>
</tr>
<tr>
<td>INFOST 375</td>
<td>Multimedia Web Design</td>
</tr>
<tr>
<td>INFOST 383</td>
<td>Native Mobile Applications</td>
</tr>
<tr>
<td>INFOST 430</td>
<td>Multimedia Application Development</td>
</tr>
<tr>
<td>INFOST 465</td>
<td>Legal Aspects of Information Products and Services</td>
</tr>
<tr>
<td>INFOST 491</td>
<td>Advanced Topics in Information Science &amp; Technology</td>
</tr>
<tr>
<td>INFOST 583</td>
<td>Survey of Information Security</td>
</tr>
<tr>
<td>INFOST 584</td>
<td>Survey of Web and Mobile Content Development</td>
</tr>
<tr>
<td>INFOST 695</td>
<td>Ethical Hacking I</td>
</tr>
<tr>
<td>INFOST 691</td>
<td>Special Topics in Information Science: 3</td>
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</table>

**Health** 24

This specialization will require 3-6 credits from a different specialization as approved by the Program Director.

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<th>Course Title</th>
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<tbody>
<tr>
<td>HCA 307</td>
<td>Epidemiology for the Health Sciences</td>
</tr>
<tr>
<td>HCA 444</td>
<td>Introduction to Text Retrieval and Its Applications in Biomedicine</td>
</tr>
<tr>
<td>HCA 541</td>
<td>Healthcare Information Systems Analysis and Design</td>
</tr>
<tr>
<td>HCA 542</td>
<td>Healthcare Database Design and Management</td>
</tr>
<tr>
<td>PH 355</td>
<td>Public Health Research Methods I</td>
</tr>
<tr>
<td>PH 410</td>
<td>True Lies: Consuming and Communicating Quantitative Information</td>
</tr>
<tr>
<td>PH 455</td>
<td>Public Health Research Methods II</td>
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**Recommend one of the following:** 2

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>HS 222</td>
<td>Language of Medicine</td>
</tr>
<tr>
<td>BMS 205</td>
<td>Introduction to Diagnostic Medicine</td>
</tr>
<tr>
<td>NURS 352</td>
<td>Health and Illness Concepts 1: Introduction</td>
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</tbody>
</table>

**Natural Sciences** 24

<table>
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<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIO SCI 469</td>
<td>Genomic Data Analysis (2 credits)</td>
</tr>
<tr>
<td>FRSHWTR 504</td>
<td>Quantitative Freshwater Analysis</td>
</tr>
<tr>
<td>FRSHWTR 514</td>
<td>Analytical Techniques in Freshwater Sciences</td>
</tr>
<tr>
<td>FRSHWTR 640</td>
<td>Sequence Analysis</td>
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<tr>
<td>MTHSTAT 563</td>
<td>Regression Analysis</td>
</tr>
<tr>
<td>MTHSTAT 564</td>
<td>Time Series Analysis</td>
</tr>
<tr>
<td>MTHSTAT 568</td>
<td>Multivariate Statistical Analysis</td>
</tr>
<tr>
<td>MATH 583</td>
<td>Introduction to Probability Models</td>
</tr>
<tr>
<td>ACTSCI 391</td>
<td>Investment Mathematics I (4 credits)</td>
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<tr>
<td>ACTSCI 591</td>
<td>Investment Mathematics II</td>
</tr>
<tr>
<td>ACTSCI 593</td>
<td>Actuarial Models I</td>
</tr>
<tr>
<td>ACTSCI 594</td>
<td>Actuarial Models II</td>
</tr>
<tr>
<td>ACTSCI 596</td>
<td>Actuarial Statistics I</td>
</tr>
<tr>
<td>ACTSCI 597</td>
<td>Actuarial Statistics II</td>
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**Social Sciences** 24

Choose at most one of the following methods courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>CRM JST 662</td>
<td>Methods of Social Welfare Research</td>
</tr>
<tr>
<td>POL SCI 203</td>
<td>Introduction to Political Science Research</td>
</tr>
<tr>
<td>PSYCH 325</td>
<td>Research Methods in Psychology (4 credits)</td>
</tr>
<tr>
<td>AFRIC 301</td>
<td>Research Methods in African &amp; African Diaspora Studies</td>
</tr>
<tr>
<td>SOCIOL 361</td>
<td>Research Methods in Sociology</td>
</tr>
</tbody>
</table>

Choose at most one of the following multiple regression courses

<table>
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<tr>
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<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ECON 310</td>
<td>Research Methods for Economics</td>
</tr>
<tr>
<td>PSYCH 610</td>
<td>Experimental Design</td>
</tr>
<tr>
<td>SOCIOL 461</td>
<td>Social Data Analysis Using Regression</td>
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</tbody>
</table>

And, take courses from the list below to complete 24 credits.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CRM JST 510</td>
<td>Introduction to Crime Analysis</td>
</tr>
<tr>
<td>CRM JST 520</td>
<td>Analysis Oriented Technology Spatial Data Analysis; Crime Mapping; ArcGIS</td>
</tr>
<tr>
<td>GEOG 215</td>
<td>Introduction to Geographic Information Science</td>
</tr>
<tr>
<td>GEOG 525</td>
<td>Geographic Information Science (4 credits)</td>
</tr>
<tr>
<td>GEOG 547</td>
<td>Spatial Analysis (4 credits)</td>
</tr>
<tr>
<td>POL SCI 390</td>
<td>Political Data Analysis</td>
</tr>
<tr>
<td>POL SCI 392</td>
<td>Survey Research</td>
</tr>
<tr>
<td>PSYCH 510</td>
<td>Advanced Psychological Statistics</td>
</tr>
<tr>
<td>SOCIOL 352</td>
<td>Social Networks</td>
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</table>

**Geographic Information Science** 24

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 525</td>
<td>Geographic Information Science (4 credits)</td>
</tr>
<tr>
<td>GEOG 547</td>
<td>Spatial Analysis (4 credits)</td>
</tr>
<tr>
<td>POL SCI 390</td>
<td>Political Data Analysis</td>
</tr>
<tr>
<td>POL SCI 392</td>
<td>Survey Research</td>
</tr>
<tr>
<td>PSYCH 510</td>
<td>Advanced Psychological Statistics</td>
</tr>
<tr>
<td>SOCIOL 352</td>
<td>Social Networks</td>
</tr>
</tbody>
</table>
GEOG 403  Remote Sensing: Environmental and Land Use Analysis (4 credits)
GEOG 437  Qualitative Methods in Geography
GEOG 547  Spatial Analysis (4 credits)
GEOG 515  Watershed Analysis and Modeling
GEOG 625  Intermediate Geographic Information Science (4 credits)
GEOG 647  ArcGIS Programming with Python (4 credits)
URBPLAN 591  Introduction to Urban Geographic Information Systems (GIS) in Planning
CRM JST 520  Analysis Oriented Technology: Spatial Data Analysis; Crime Mapping; ArcGIS

2 Recommended courses do not count toward the specialization unless approved by the Director. They are merely recommended additional courses.

3 Specific topics courses need to be approved for the degree by the Program Director. A topic course cannot be used again if applied to a prior degree requirement category.

General Electives
With the help of their academic advisor, students will select electives to complete the 120 total credits required for the degree. Electives are tailored to each student’s interests and career goals.

Honors in the School of Information Studies

Dean's Honor List
GPA of 3.750 or above, earned on a full-time student’s GPA on 12 or more graded credits in a given semester.

Honors Degree and Honors Degree with Thesis
Granted to graduating seniors who complete Honors College requirements, as listed in the Honors College (http://catalog.uwm.edu/honors-college/) section of this site.

Commencement Honors
Students with a cumulative GPA of 3.500 or above, based on a minimum of 40 graded UWM credits earned prior to the final semester, will receive all-university commencement honors and be awarded the traditional gold cord at the December or May Honors Convocation. Please note that for honors calculation, the GPA is not rounded and is truncated at the third decimal (e.g., 3.499).

Final Honors
Earned on a minimum of 60 graded UWM credits: Cum Laude - 3.500 or above; Magna Cum Laude - 3.650 or above; Summa Cum Laude - 3.800 or above.