**MINOR IN COMPUTATIONAL DATA ANALYSIS**

The Computational Data Analysis minor will provide students with the necessary mathematical and statistical background to develop and apply various data analysis techniques to real world datasets. The minor has three main objectives related to knowledge, skills, and application:

1. provide students with foundational knowledge of topics such as probability and statistics, algorithms and data structures to solve data analysis problems arising in practical applications,
2. develop students’ skill in software development techniques using one or more high level programming languages relevant to data analytics,
3. enable students to effectively apply computational methods to solve exemplar data analysis problems arising in relevant applications.

**Minor Program of Study & Guidelines**

**Program of Study**

This minor must comprise at least 15 credit hours, of which at least 9 credit hours are upper-division coursework (numbered 3000 or above).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CS 1331</td>
<td>Introduction to Object Oriented Programming</td>
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**Prerequisite**

- CS 1331 Introduction to Object Oriented Programming

**Required Courses**

- CX 4240 Introduction to Computing for Data Analysis: 3 Credit Hours
- CX 4242 Data and Visual Analytics: 3 Credit Hours

**Probability and Statistics**

Select one of the following: 3 Credit Hours

- MATH 3215 Introduction to Probability and Statistics
- MATH 3225 Honors Probability and Statistics
- ECE 3077 Prob/Stats for ECE
- ISYE 2027 Probability with Applications

**Computational Methods**

Select one of the following: 3 Credit Hours

- CX 4010 Computational Problem Solving for Scientists and Engineers
- CS 4400 Introduction to Database Systems
- CS 4460 Introduction to Information Visualization

**Electives**

Select one of the following: 3 Credit Hours

- BIOL 4150 Genomics and Applied Bioinformatics
- CEE 3010 Geomatics
- CS 3630 Introduction to Perception and Robotics
- CS 4400 Introduction to Database Systems
- CS 4460 Introduction to Information Visualization
- CS 4495 Computer Vision
- CX 4010 Computational Problem Solving for Scientists and Engineers
- CS 4803 Special Topics (Computational Sustainability)
- EAS 4430 Remote Sensing and Data Analysis

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>EAS 4480</td>
<td>Environmental Data Analysis</td>
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<tr>
<td>ECE 4270</td>
<td>Fundamentals of Digital Signal Processing</td>
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<tr>
<td>ECE 4560</td>
<td>Introduction to Automation and Robotics</td>
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<td>ECE 4580</td>
<td>Computational Computer Vision</td>
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<tr>
<td>ECE 4823</td>
<td>Special Topics (Game Theory and Multi-agent Systems)</td>
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<td>ISYE 4311</td>
<td>Capital Investment Analysis</td>
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<tr>
<td>ISYE 3232</td>
<td>Stochastic Manufacturing and Service Systems</td>
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<tr>
<td>MGT 4067</td>
<td>Financial Markets: Trading and Structure</td>
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<tr>
<td>MGT 4068</td>
<td>Fixed Income</td>
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<tr>
<td>PSYC 4031</td>
<td>Applied Experimental Psychology</td>
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Total Credit Hours: 15

1. CS 1331 prerequisite for the minor required (this course does NOT count toward the 15 credit hours required for minor) and a grade of A or B is required

- A CS Minor application is required
- No Special Problems or Internship coursework may be used towards the CS minor.
- All minor courses must be completed with a grade of C or higher.
- A maximum of 6 credit hours of Special Topics courses may be included in a minor.
- A maximum of 3 credit hours of transfer credit may be used to satisfy the course requirements for a minor. This includes courses taken at another institution or credit earned through the AP or IB program, assuming the scores meet Georgia Tech minimum standards.
- It is the major advisor’s responsibility to verify that students are using only courses from the designated block(s) from the student’s major field of study that are allowed to satisfy a minor program, that they are not using any Core Area A-E courses (including humanities and social sciences), and that they are not using any courses for more than one minor or certificate. Any free elective course used to satisfy the course requirements of the student’s major degree program may also be used to satisfy the course requirements for a minor.