BACHELOR OF SCIENCE IN COMPUTER SCIENCE - THREAD: INFORMATION INTERNETWORKS & MEDIA

The Threads™ represent partial paths through the curriculum. Thus, a student weaves a degree from these Threads. Students are not forced to make Thread decisions very early in their academic careers; however, they may if they want. We define the Threads so they are flexible enough to allow for a variety of technical and creative experiences. Threads are coherent enough that students develop computing skills even if their focus shifts as they go along.

The Media thread is where computing meets design. This thread prepares students by helping them to understand the technical and computational capabilities of systems in order to exploit their abilities to provide creative outlets.

The Information Internetworks thread is where computing meets the data enterprise and all that this implies. The thread prepares students for all levels of information management by helping them to capture, represent, organize, transform, communicate, and present data so that it becomes information.

### Code | Title | Credit Hours
--- | --- | ---

**Wellness**

- APPH 1040 Scientific Foundations of Health 2
- or APPH 10 The Science of Physical Activity and Health

**Core A - Essential Skills**

- ENGL 1101 English Composition I 3
- ENGL 1102 English Composition II 3
- MATH 1552 Integral Calculus 4

**Core B - Institutional Options**

- CS 1301 Introduction to Computing 1 3

**Core C - Humanities**

Any HUM (http://www.catalog.gatech.edu/academics/undergraduate/core-curriculum/core-area-c) 6

**Core D - Science, Math, & Technology**

- PHYS 2211 Introductory Physics 1, 2 4
- Lab Science 2
- MATH 1551 Differential Calculus 2
- MATH 1554 Linear Algebra 4
- or MATH 155 Linear Algebra with Abstract Vector Spaces 4

**Core E - Social Sciences**

Select one of the following: 3

- HIST 2111 The United States to 1877
- HIST 2112 The United States since 1877
- INTA 1200 American Government in Comparative Perspective
- POL 1101 Government of the United States
- PUBP 3000 American Constitutional Issues

Any SS (http://www.catalog.gatech.edu/academics/undergraduate/core-curriculum/core-area-e) 9

### Core F - Courses Related to Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Science 2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CS 1100</td>
<td>Freshman Leap Seminar</td>
<td>1</td>
</tr>
<tr>
<td>CS 1331</td>
<td>Introduction to Object Oriented Programming 1</td>
<td>3</td>
</tr>
<tr>
<td>CS 1332</td>
<td>Data Structures and Algorithms for Applications 1</td>
<td>3</td>
</tr>
<tr>
<td>CS 2050</td>
<td>Introduction to Discrete Mathematics for Computer Science 1</td>
<td>3</td>
</tr>
<tr>
<td>or CS 2051</td>
<td>Honors - Induction to Discrete Mathematics for Computer Science</td>
<td></td>
</tr>
<tr>
<td>MATH 2550</td>
<td>Introduction to Multivariable Calculus 4</td>
<td>2</td>
</tr>
</tbody>
</table>

### Major Requirements

- CS 2340 Objects and Design 1 | 3 |
- CS 4001 Computing, Society, and Professionalism 1 | 3 |
- or CS 4002 Robots and Society |
- or CS 4726 Privacy, Technology, Policy, and Law |
- or SLS 3110 Technology and Sustainable Community Development

**Junior Design Options (Capstone)**

Junior Design Option 1, 3, 6

### Concentration

- CS 2110 Computer Organization and Programming 1 | 4 |
- CS 2210 Computer Systems and Networks 1 | 4 |
- CS 3451 Computer Graphics 1 | 3 |
- CS 3510 Design and Analysis of Algorithms 1 | 3 |
- or CS 3511 Design and Analysis of Algorithms, Honors

Select six credit hours of the following for Introduction to Information Management: 1

- CS 3251 Computer Networking I
- CS 4235 Introduction to Information Security
- CS 4400 Introduction to Database Systems

Select one of the following for Advanced Information Management: 1

- CS 3251 Computer Networking I (if not taken for Introduction to Information Management)
- CS 4235 Introduction to Information Security (if not taken for Introduction to Information Management)

### Select six credit hours of the following for Media Technologies: 1

- CS 4455 Video Game Design and Programming
**Cooperative Programs**

The College of Computing participates in the undergraduate and graduate Cooperative Programs. See links below for further information:

- Undergraduate Cooperative Plan (http://catalog.gatech.edu/academics/special-academic-programs/experiential-education/center-career-discovery-development)
- Graduate Cooperative Plan (http://catalog.gatech.edu/academics/special-academic-programs/experiential-education/graduate-cooperative-plan)

**Other Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 3012</td>
<td>Applied Combinatorics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 3211</td>
<td>Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>ISYE 3770</td>
<td>Statistics and Applications</td>
<td></td>
</tr>
<tr>
<td>CEE 3770</td>
<td>Statistics and Applications</td>
<td></td>
</tr>
<tr>
<td>LMC 4701</td>
<td>Principles and Applications</td>
<td></td>
</tr>
<tr>
<td>LMC 4702</td>
<td>Principles and Applications</td>
<td></td>
</tr>
<tr>
<td>LMC 4703</td>
<td>Principles and Applications</td>
<td></td>
</tr>
<tr>
<td>MATH 1554</td>
<td>Probability and Statistics</td>
<td></td>
</tr>
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<td>Probability and Statistics</td>
<td></td>
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</tbody>
</table>

**Free Electives**

Free Electives: 16

Total Credit Hours: 126

Pass-fail only allowed for Free Electives (max six credit hours), CS 1100, and CS 1171 (if required).

1. Minimum grade of C required.
2. Two of three labs MUST be a sequence.
3. Junior Design Options are as follows (students must pick one option and may not change):
   - Option 1 - LMC 3432, LMC 3431, CS 3311, CS 3312.
   - Option 2 - ECE VIP courses and LMC 3403.
   - Option 3 - Satisfy Georgia Tech Research Option.
   - Option 4 - CS 2701 (3 hours), CS 4699-I2P (3 hours), LMC 3403 (3 hours) = 9 hours OR CS 4699-I2P (6 hours), LMC 3403 (3 hours) = 9 hours

Six credits of the Junior Design option are used as Major Requirements and the average credits of research/VIP (5 credit hours/2 credit hours) may be used as free electives. Students completing VIP for their junior design requirement will be required to complete at least three semesters of VIP. (VIP 1 + VIP 2 + VIP 3) (for a total of 5 credit hours) + LMC 3403 = 8 hours of VIP credit. Students using CREATE-X for junior design take at least 6 hours of CREATE-X Start-ip Lab and Idea 2 Prototype (I2P) and 3 of the 6 hours must be I2P. Students take these 6 hours with LMC 3403 (3 hours) for a total of 9 hours. Extra three hours for CREATE-X option can be used in free electives.

4. Two credit hours of MATH 1554 may count along with MATH 2550 to give Area F 18 credit hours.

**International Plan**

The College of Computing (http://www.cc.gatech.edu) has an approved BS CS International Plan that accommodates the unique requirements of this option discussed in the International Plan section of the catalog (http://www.catalog.gatech.edu/academics/special-academic-programs/international-plan).

However, due to the flexible nature of the Threads curriculum, the International Plan designation may not be available with all of the Thread combinations. Efforts will be made to work with interested students to accommodate their individual circumstances with regard to the International Plan designator for the Bachelor of Science in Computer Science.

**Research Option**

To complete the Research Option in the College of Computing, students must:

1. Complete at least nine units of undergraduate research
   a. Over at least two, preferably three terms
   b. Research may be for either pay or credit;
2. Write an undergraduate thesis/report of research on their findings;
3. Take
   a. LMC 4701: Undergraduate Research Proposal Writing (taken during the first or second semester of research)
   b. LMC 4702: Undergraduate Research Thesis Writing (taken during the thesis writing semester).

**Research Classes**

The following classes count toward fulfillment of the Research Option:

<table>
<thead>
<tr>
<th>Research for Credit</th>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2699</td>
<td>Undergraduate Research (Freshman and Sophomore)</td>
<td>1-12</td>
<td></td>
</tr>
<tr>
<td>CS 4699</td>
<td>Undergraduate Research (Junior and Senior)</td>
<td>1-12</td>
<td></td>
</tr>
<tr>
<td>CS 4980</td>
<td>Research Capstone Project</td>
<td>1-21</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Research for Pay (Audit only)</th>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2698</td>
<td>Undergraduate Research Assistantship (Freshman and Sophomore)</td>
<td>1-12</td>
<td></td>
</tr>
<tr>
<td>CS 4698</td>
<td>Undergraduate Research Assistantship (Junior and Senior)</td>
<td>1-12</td>
<td></td>
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</table>

To get credit toward completion of the Research Option for research for pay, students must be registered for the appropriate audit-only, research for pay class (CS 2698 or 4698). If work on research for pay begins after the close of registration and the student has not signed up for the appropriate class, unfortunately it is not possible to get credit toward the Research Option for work that term.

A research project will also fulfill the capstone design requirement if the student registers for CS 4980 for one of the research terms. This is typically done the last semester of research, while taking LMC 4702.
Completion of the Research Option is noted on the student’s transcript. For more information, see www.urop.gatech.edu (http://www.urop.gatech.edu).

General Research Option Information (http://www.catalog.gatech.edu/academics/special-academic-programs/undergraduate-research-opportunities-program)

**BS/MS in Computer Science**

Students who want to pursue the BS/MS option must apply to the MSCS program after completing at least 60 hours of work towards the BSCS degree. Applicants should have a cumulative GPA of at least 3.4. This GPA must be maintained for the student to take graduate level courses.

Students admitted to the program will take 6 hours during their final undergraduate year to double count in both their BSCS and MSCS degrees; they should choose 3 hours of MS Core or Elective hours their fall semester and 3 hours of MS Core or Elective hours their spring semester that can count toward their thread hours and CS Specialization hours.

Visit College of Computing (https://www.cc.gatech.edu) for more information.