School of Computer Science

Tom Mitchell, Interim Dean
Guy Bielloch, Associate Dean for Undergraduate Education
Thomas Cortina, Assistant Dean for Undergraduate Education

Location: GHC 4115
www.cs.cmu.edu/undergraduate-programs (http://www.cs.cmu.edu/undergraduate-programs/)

Carnegie Mellon founded one of the first Computer Science departments in the world in 1965. As research and teaching in computing grew at a tremendous pace at Carnegie Mellon, the university formed the School of Computer Science at the end of 1988. Carnegie Mellon was one of the first universities to elevate Computer Science into its own academic college at the same level as the Mellon College of Science and the College of Engineering. Today, the School of Computer Science consists of seven departments and institutes, including the Computer Science Department that started it all, along with the Human-Computer Interaction Institute, the Institute for Software Research, the Computational Biology Department, the Language Technologies Institute, the Machine Learning Department, and the Robotics Institute. Together, these units make the School of Computer Science a world leader in research and education. Recently, the School of Computer Science launched two new undergraduate majors: Computational Biology and Artificial Intelligence. These new majors, along with the highly-ranked Computer Science major, give students the School of Computer Science distinct paths in the field of computing with ample opportunities in industry and advanced research.

The School of Computer Science offers the following majors and minors:

- B.S. in Artificial Intelligence
- B.S. in Computational Biology
- B.S. in Computer Science
- Bachelor's in Computer Science and Art (joint with the College of Fine Arts)
- Additional major in Computational Biology
- Additional major in Computer Science
- Additional major in Human-Computer Interaction
- Additional major in Robotics
- Minor in Computer Science
- Minor in Computational Biology
- Minor in Human-Computer Interaction
- Minor in Language Technologies
- Minor in Machine Learning
- Minor in Neural Computation
- Minor in Robotics
- Minor in Software Engineering

Information for these majors and minors can be found through the navigation menu or through the links below:

- Artificial Intelligence (http://coursecatalog.web.cmu.edu/schools-colleges/schoolofcomputerscience/artificialintelligence/) (B.S. degree)
- Computational Biology (http://coursecatalog.web.cmu.edu/schools-colleges/schoolofcomputerscience/undergraduate/computationalbiology/) (B.S. degree, additional major, minor)
- Computer Science (http://coursecatalog.web.cmu.edu/schools-colleges/schoolofcomputerscience/undergraduate/computerscience/) (B.S. degree, additional major, minor)
- SCS additional majors and minors (http://coursecatalog.web.cmu.edu/schools-colleges/schoolofcomputerscience/addmajors/minors/)

Students who apply to, and are directly admitted into, the School of Computer Science can choose between three primary majors: Artificial Intelligence, Computational Biology or Computer Science. Students admitted into the School of Computer Science and the College of Fine Arts are also given the option to pursue a joint major in Computer Science and Art. Suitably prepared students from other Carnegie Mellon colleges are eligible to apply for internal transfer to the School of Computer Science (for Computational Biology or Computer Science) and will be considered for transfer if grades in specific requirements are sufficiently high and space is available. Computational-oriented programs are also available within the Mellon College of Science, the Dietrich College of Humanities and Social Sciences, the College of Engineering and the College of Fine Arts.

Policies & Procedures

Academic Standards and Actions

Grading Practices

Grades given to record academic performance in SCS are detailed under Grading Practices at Undergraduate Academic Regulations (http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduateacademicregulations/).

Dean’s LIST WITH HIGH HONORS

SCS recognizes each semester those undergraduates who have earned outstanding academic records by naming them to the Dean’s List with High Honors. The criterion for such recognition is a quality point average of at least 3.75 while completing a minimum of 36 factorable units and earning no incomplete grades.

Academic Actions

In the first year, quality point averages below 1.75 in either semester invoke an academic action. For all subsequent semesters an academic action will be taken if the semester quality point average or the cumulative quality point average (excluding the first year) is below 2.00.

Probation: The action of probation will be taken in the following cases based on QPA:

1. One semester of the first year is below 1.75 QPA;
2. The semester QPA of a student in good standing beyond the first year falls below 2.00.

The term of probation is one semester as a full-time student. First-year students are no longer on probation at the end of the second semester if the second semester’s QPA is 1.75 or above. Students in the third or subsequent semester of study are no longer on probation at the end of one semester if the semester QPA and cumulative QPA (excluding the first year) are 2.00 or above.

Probation Continued: A student who has had one semester on probation and is not yet meeting minimum requirements but whose record indicates that the standards are likely to be met at the end of the next semester of study is occasionally continued on probation. This action is normally taken only when a student’s semester QPA is above 2.0 but their cumulative QPA is not yet above 2.0.

Suspension: A student who does not meet minimum standards based on QPA at the end of one semester of probation will be suspended:

1. A first year student will be suspended if the QPA from each semester is below 1.75.
2. A student on probation in the third or subsequent semester of study will be suspended if the semester QPA is below 2.0.

The minimum period of suspension is one academic year (two non-summer semesters). At the end of that period a student may return to campus (on probation) by:

1. completing a Return from Leave form from the HUB, and
2. submitting an additional written statement to the SCS Assistant Dean for Undergraduate Education, minimum one page, that outlines what the student did while on leave to address the issues that led to the suspension and that would indicate future success on return, and
3. (optional) submitting up to two letters of support from individuals supporting the student’s return, and

4. written approval from the student’s academic advisor and the Assistant Dean for Undergraduate Education, in consultation with the Office of Student Affairs and the Office of International Education as appropriate.

Students who have been suspended or have withdrawn are required to absent themselves from the campus (including residence halls and Greek houses) within a maximum of two days after the action and to remain off the campus for the duration of the time specified. This action includes debarment from part-time or summer courses at the university for the duration of the period of the action. Although suspended students may not hold student jobs, students on academic suspension may, under certain circumstances, have a non-student job with the university. Students on disciplinary or administrative suspension may not.

School of Computer Science
Return from Leave of Absence

SCS undergraduate students may elect to take a leave of absence for a variety of reasons, after consultation with their academic advisor. Students returning from a leave of absence are required to submit a Return from Leave of Absence form to their academic advisor for approval by the student's academic advisor and the SCS Assistant Dean for Undergraduate Education. In addition, the student must also supply a letter that explains the reason for the leave, the actions that were performed during the leave to prepare the student for a successful return, and a description of the on-campus resources, if required, that would be used by the student in order to increase the likelihood of success. Students returning from a leave are also encouraged to provide up to two letters of support from people close to the student (e.g. family, friends, clergy, teachers, coaches, others as appropriate). Requests to return are reviewed by the student's academic advisor, the Assistant Dean and the Student Affairs liaison to determine eligibility and any resources that need to be put into place to assist the student upon return. Contact the CS Undergraduate Office for more information.

Internal Transfer

First year students admitted to SCS are considered undeclared during their first year. These students declare their SCS major in the second semester of their freshman year. SCS students who wish to transfer from one SCS major to another SCS major may do so by applying for transfer by mid-semester break during the semester the transfer is desired. These students should consult with their academic advisor and the program director of the intended major for more information about specific course requirements and academic plans. Internal SCS transfers do not have any grade requirements. Transfers are approved based on demonstrated interest, ability, and available space in the intended major.

Transfer into SCS / Dual-Degree

Undergraduate students admitted to colleges at CMU other than SCS and wishing to transfer to Computer Science or pursue a dual degree in Computer Science should consult with the SCS Assistant Dean for Undergraduate Education during their first year. Students wishing to transfer to Computational Biology or pursue a dual degree in Computational Biology should consult with the Assistant Department Head for Undergraduate Education in the Computational Biology Department during their first year. See the individual program pages for Computer Science (http://coursecatalog.web.cmu.edu/schools-colleges/schoolofcomputerscience/undergraduatecomputerscience/) and Computational Biology (http://coursecatalog.web.cmu.edu/schools-colleges/schoolofcomputerscience/undergraduatecomputationalbiology/) for locations.

- For the Computer Science major, students must complete 21-127 (or equivalent), 15-122, 15-150, 15-210, 15-213, 15-251 with an overall QPA of at least 3.0. These courses are prerequisites for the Computer Science major.
- For the Computational Biology major, students must complete 21-127 (or equivalent), 15-122, 15-251, 15-351 (or 15-210*), 03-121 and 02-250 with an overall QPA of at least 3.0. These courses are prerequisites for the Computational Biology major.

Graduation Requirements

1. A requirement for graduation is the completion of the program specified for a degree with a cumulative quality point average of 2.00 or higher for all courses taken after the first year.
2. Students must be recommended for a degree by the faculty of SCS.
3. A candidate for the bachelor's degree must complete at the University a minimum of four semesters of full-time study, or the equivalent of part-time study, comprising at least 180 units of course work.
4. Students will be required to have met all financial obligations to the University before being awarded a degree.

Science and Engineering

All candidates for a B.S. degree in the School of Computer Science must complete a minimum of 36 units offered by the Mellon College of Science and/or the College of Engineering (CIT).
For Artificial Intelligence and Computer Science majors, four courses in science and engineering are required, 9 units or more for each course, at least one course must have a laboratory component and at least two courses must be from the same department.

Non-lab courses that can be taken by AI and CS majors to satisfy this requirement are given in the list below. (Consult your academic advisor for additional choices available each semester.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>02-223</td>
<td>Personalized Medicine: Understanding Your Own Genome</td>
<td>9</td>
</tr>
<tr>
<td>03-121</td>
<td>Modern Biology</td>
<td>9</td>
</tr>
<tr>
<td>03-125</td>
<td>Evolution</td>
<td>9</td>
</tr>
<tr>
<td>03-132</td>
<td>Basic Science to Modern Medicine</td>
<td>9</td>
</tr>
<tr>
<td>03-133</td>
<td>Neurobiology of Disease</td>
<td>9</td>
</tr>
<tr>
<td>06-100</td>
<td>Introduction to Chemical Engineering</td>
<td>12</td>
</tr>
<tr>
<td>06-221</td>
<td>Thermodynamics</td>
<td>9</td>
</tr>
<tr>
<td>09-105</td>
<td>Introduction to Modern Chemistry I</td>
<td>10</td>
</tr>
<tr>
<td>09-106</td>
<td>Modern Chemistry II</td>
<td>10</td>
</tr>
<tr>
<td>09-217</td>
<td>Organic Chemistry I</td>
<td>9</td>
</tr>
<tr>
<td>09-218</td>
<td>Organic Chemistry II</td>
<td>9</td>
</tr>
<tr>
<td>09-225</td>
<td>Climate Change: Chemistry, Physics and Planetary Science</td>
<td>9</td>
</tr>
<tr>
<td>12-100</td>
<td>Exploring CEE: Infrastructure and Environment in a Changing World</td>
<td>12</td>
</tr>
<tr>
<td>12-201</td>
<td>Geology</td>
<td>9</td>
</tr>
<tr>
<td>18-100</td>
<td>Introduction to Electrical and Computer Engineering</td>
<td>12</td>
</tr>
<tr>
<td>18-220</td>
<td>Electronic Devices and Analog Circuits</td>
<td>12</td>
</tr>
<tr>
<td>18-240</td>
<td>Structure and Design of Digital Systems</td>
<td>12</td>
</tr>
<tr>
<td>24-101</td>
<td>Fundamentals of Mechanical Engineering</td>
<td>12</td>
</tr>
<tr>
<td>24-231</td>
<td>Fluid Mechanics</td>
<td>10</td>
</tr>
<tr>
<td>24-261</td>
<td>Statics</td>
<td>10</td>
</tr>
<tr>
<td>24-351</td>
<td>Dynamics</td>
<td>10</td>
</tr>
<tr>
<td>33-114</td>
<td>Physics of Musical Sound</td>
<td>9</td>
</tr>
<tr>
<td>33-120</td>
<td>Science and Science Fiction</td>
<td>9</td>
</tr>
<tr>
<td>33-121</td>
<td>Physics I for Science Students</td>
<td>12</td>
</tr>
<tr>
<td>or 33-151</td>
<td>Matter and Interactions I</td>
<td></td>
</tr>
<tr>
<td>33-142</td>
<td>Physics II for Engineering and Physics Students</td>
<td>12</td>
</tr>
<tr>
<td>or 33-152</td>
<td>Matter and Interactions II</td>
<td></td>
</tr>
<tr>
<td>33-224</td>
<td>Stars, Galaxies and the Universe</td>
<td>9</td>
</tr>
<tr>
<td>42-101</td>
<td>Introduction to Biomedical Engineering</td>
<td>12</td>
</tr>
<tr>
<td>42-202</td>
<td>Physiology</td>
<td>9</td>
</tr>
<tr>
<td>42-341</td>
<td>Introduction to Biomechanics</td>
<td>9</td>
</tr>
<tr>
<td>85-219</td>
<td>Biological Foundations of Behavior</td>
<td>9</td>
</tr>
</tbody>
</table>

At present, courses meeting the lab requirement are:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>02-261</td>
<td>Quantitative Cell and Molecular Biology Laboratory</td>
<td>9</td>
</tr>
<tr>
<td>03-124</td>
<td>Modern Biology Laboratory</td>
<td>9</td>
</tr>
<tr>
<td>09-101</td>
<td>Introduction to Experimental Chemistry (This 3 unit lab together with 09-105 satisfies the lab requirement.)</td>
<td>3</td>
</tr>
<tr>
<td>09-221</td>
<td>Laboratory I: Introduction to Chemical Analysis</td>
<td>12</td>
</tr>
<tr>
<td>27-100</td>
<td>Engineering the Materials of the Future</td>
<td>12</td>
</tr>
<tr>
<td>33-104</td>
<td>Experimental Physics</td>
<td>9</td>
</tr>
<tr>
<td>42-203</td>
<td>Biomedical Engineering Laboratory</td>
<td>9</td>
</tr>
<tr>
<td>85-310</td>
<td>Research Methods in Cognitive Psychology</td>
<td>9</td>
</tr>
<tr>
<td>85-314</td>
<td>Cognitive Neuroscience Research Methods</td>
<td>9</td>
</tr>
</tbody>
</table>

The following MCS or CIT courses cannot be used to satisfy the Science and Engineering requirement:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-511</td>
<td>Computational Molecular Biology and Genomics</td>
<td>9</td>
</tr>
<tr>
<td>03-512</td>
<td>Computational Methods for Biological Modeling and Simulation</td>
<td>9</td>
</tr>
<tr>
<td>06-262</td>
<td>Mathematical Methods of Chemical Engineering</td>
<td>12</td>
</tr>
<tr>
<td>09-103</td>
<td>Atoms, Molecules and Chemical Change</td>
<td>9</td>
</tr>
<tr>
<td>09-231</td>
<td>Mathematical Methods for Chemists</td>
<td>9</td>
</tr>
</tbody>
</table>

12-271 Introduction to Computer Application in Civil & Environmental Engineering | 9
18-090 Twisted Signals: Multimedia Processing for the Arts | 10
18-200 ECE Sophomore Seminar | 1
18-202 Mathematical Foundations of Electrical Engineering | 12
18-213 Introduction to Computer Systems | 12
18-345 Introduction to Telecommunication Networks | 12
18-411 Computational Techniques in Engineering | 12
18-482 Telecommunications Technology and Policy for the Internet Age | 12
18-487 Introduction to Computer Security | 12
18-540 Rapid Prototyping of Computer Systems | 12
19-101 Introduction to Engineering and Public Policy | 12
19-211 Ethics and Policy Issues in Computing | 9
19-325 Technology and Policy Writing for Lay Audiences | 9
19-402 Telecommunications Technology and Policy for the Internet Age | 12
19-411 Science and Innovation Leadership for the 21st Century: Firms, Nations, and Tech | 9
19-432 Special Topics: Bitcoin and Cryptocurrencies | 6
27-410 Computational Techniques in Engineering | 12
33-100 Basic Experimental Physics | 6
33-115 Physics for Future Presidents | 9
33-124 Introduction to Astronomy | 9
33-232 Mathematical Methods of Physics | 10
42-201 Professional Issues in Biomedical Engineering | 3

All Electrical and Computer Engineering graduate courses (18-6xx, 18-7xx, 18-8xx, 18-9xx) cannot be used for this requirement. In general, any MCS or CIT courses that are cross-listed with SCS courses or have significant mathematical or computational content cannot be used for this requirement. Consult with a CS undergraduate advisor about any course to be used for the Science and Engineering requirement before registration.

Humanities and Arts

All candidates for a B.S. degree in the School of Computer Science must complete a minimum of 63 units offered by the College of Humanities & Social Sciences and/or the College of Fine Arts as prescribed below. Students pursuing a Bachelor’s in Computer Science and Art (http://coursecatalog.web.cmu.edu/servicesandoptions/intercollegeprograms/bxaintercollege/#bcssacurriculumtext) should consult the general education requirements for that program.

A. Freshman Writing Requirement (9 units)

Complete one of the following writing options for 9 units:

76-101 Interpretation and Argument | 9
76-102 Advanced First Year Writing: Special Topics (by invitation only) | 9

or two of these three writing minis for 9 units total:

76-106 Writing about Literature, Art and Culture | 4.5
76-107 Writing about Data | 4.5
76-108 Writing about Public Problems | 4.5

B. Breadth Requirement (minimum 27 units: 9 units each)

Complete three courses, one each from Category 1, Category 2, and Category 3. Students may use two minis totaling 9 units or more to satisfy one of the categories, with permission of the Assistant Dean for Undergraduate Education, if the minis meet the goals of the desired category. NOTE: Artificial Intelligence majors replace Category 1 with Category 1A: Cognitive Studies which is a subset of Category 1.

Category 1 (for Computational Biology and Computer Science majors): Cognition, Choice and Behavior - this requirement explores the process of thinking, decision making, and behavior in the context of the individual.

70-311 Organizational Behavior | 9
80-130 Introduction to Ethics | 9
80-150 Nature of Reason | 9
80-180 Nature of Language | 9
80-221 Philosophy of Social Science | 9
80-241 Ethical Judgments in Professional Life | 9
Institutions - this requirement explores the processes by which institutions organize individual preferences and actions into collective outcomes.

Category 2 (all SCS majors): Economic, Political and Social Institutions - this requirement explores the processes by which institutions organize individual preferences and actions into collective outcomes.

Category 3 (all SCS majors): Cultural Analysis - this requirement seeks to recognize cultures that have shaped and continue to shape the human experience; courses in this category are usually either broad in place, time, or cultural diversity.

Complete 3 non-technical courses of at least 9 units each from any of the departments in the College of Humanities & Social Sciences or the College of Fine Arts. Some of the courses taught in these units are considered to shape the human experience; courses in this category are usually either broad in place, time, or cultural diversity.
technical courses and may not be used to satisfy this requirement (see Deletions below). Additionally, a select set of courses from Business Administration and from Environmental and Public Policy can also count for this requirement (see Additions below). Students may combine humanities/arts courses with lower units together to form a single course of 9 units or more. Students are encouraged, but not required, to take courses from different departments to gain additional breadth and to create new opportunities for engagement with the university community.

The most up-to-date list of additions and deletions can be found at http://www.csd.cs.cmu.edu/content/bscss-humanities-and-arts-requirements (http://www.csd.cs.cmu.edu/content/bscss-humanities-and-arts-requirements/) and supersedes the lists given below. Consult with a CS undergraduate advisor for additional information.

**Deletions**

The following courses may not count toward the unconstrained electives in Humanities and Arts in SCS due to the technical (computing and/or mathematical) nature of the courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>36-200</td>
<td>Reasoning with Data</td>
<td>9</td>
</tr>
<tr>
<td>36-202</td>
<td>Methods for Statistics &amp; Data Science</td>
<td>9</td>
</tr>
<tr>
<td>36-207</td>
<td>Probability and Statistics for Business Applications</td>
<td>9</td>
</tr>
<tr>
<td>36-208</td>
<td>Regression Analysis</td>
<td>9</td>
</tr>
<tr>
<td>36-217</td>
<td>Probability Theory and Random Processes</td>
<td>9</td>
</tr>
<tr>
<td>36-220</td>
<td>Engineering Statistics and Quality Control</td>
<td>9</td>
</tr>
<tr>
<td>36-225</td>
<td>Introduction to Probability Theory</td>
<td>9</td>
</tr>
<tr>
<td>36-226</td>
<td>Introduction to Statistical Inference</td>
<td>9</td>
</tr>
<tr>
<td>36-247</td>
<td>Statistics for Lab Sciences</td>
<td>9</td>
</tr>
<tr>
<td>36-303</td>
<td>Sampling, Survey and Society</td>
<td>9</td>
</tr>
<tr>
<td>36-304</td>
<td>Biostatistics</td>
<td>9</td>
</tr>
<tr>
<td>36-309</td>
<td>Experimental Design for Behavioral &amp; Social Sciences</td>
<td>9</td>
</tr>
<tr>
<td>36-314</td>
<td>Biostatistics</td>
<td>9</td>
</tr>
<tr>
<td>36-315</td>
<td>Statistical Graphics and Visualization</td>
<td>9</td>
</tr>
<tr>
<td>36-326</td>
<td>Mathematical Statistics (Honors)</td>
<td>9</td>
</tr>
<tr>
<td>36-350</td>
<td>Statistical Computing</td>
<td>9</td>
</tr>
<tr>
<td>36-401</td>
<td>Modern Regression</td>
<td>9</td>
</tr>
<tr>
<td>36-402</td>
<td>Advanced Methods for Data Analysis</td>
<td>9</td>
</tr>
<tr>
<td>36-410</td>
<td>Introduction to Probability Modeling</td>
<td>9</td>
</tr>
<tr>
<td>36-428</td>
<td>Time Series</td>
<td>9</td>
</tr>
<tr>
<td>36-459</td>
<td>Statistical Models of the Brain</td>
<td>9</td>
</tr>
<tr>
<td>36-461</td>
<td>Special Topics: Statistical Methods in Epidemiology</td>
<td>9</td>
</tr>
<tr>
<td>36-462</td>
<td>Special Topics: Data Mining</td>
<td>9</td>
</tr>
<tr>
<td>36-463</td>
<td>Special Topics: Multilevel and Hierarchical Models</td>
<td>9</td>
</tr>
<tr>
<td>36-464</td>
<td>Special Topics: Applied Multivariate Methods</td>
<td>9</td>
</tr>
<tr>
<td>36-468</td>
<td>Special Topics: Text Analysis</td>
<td>9</td>
</tr>
<tr>
<td>36-490</td>
<td>Undergraduate Research</td>
<td>9</td>
</tr>
<tr>
<td>36-492</td>
<td>Topic Detection and Document Clustering</td>
<td>9</td>
</tr>
<tr>
<td>36-494</td>
<td>Astrostatistics</td>
<td>9</td>
</tr>
<tr>
<td>51-224</td>
<td>CD: Web Design</td>
<td>9</td>
</tr>
<tr>
<td>51-257</td>
<td>Introduction to Computing for Creative Practices</td>
<td>9</td>
</tr>
<tr>
<td>51-327</td>
<td>Design Center: Introduction to Web Design</td>
<td>9</td>
</tr>
<tr>
<td>51-328</td>
<td>Design Center: UX for Digital Systems</td>
<td>9</td>
</tr>
<tr>
<td>67-211</td>
<td>Business Oriented Sys:History, Des &amp; Dev-Lens of CoBOL Programming Language</td>
<td>9</td>
</tr>
<tr>
<td>67-240</td>
<td>Mobile Web Design &amp; Development</td>
<td>9</td>
</tr>
<tr>
<td>67-250</td>
<td>The Information Systems Milieux</td>
<td>9</td>
</tr>
<tr>
<td>67-261</td>
<td>Information Design Fundamentals</td>
<td>9</td>
</tr>
<tr>
<td>67-262</td>
<td>Database Design and Development</td>
<td>9</td>
</tr>
<tr>
<td>67-272</td>
<td>Application Design and Development</td>
<td>9</td>
</tr>
<tr>
<td>67-279</td>
<td>Introduction to Geographical Information Systems</td>
<td>9</td>
</tr>
<tr>
<td>67-306</td>
<td>Special Topics: Management of Computer and Information Systems</td>
<td>9</td>
</tr>
<tr>
<td>67-308</td>
<td>Innovation Studio: Health Care Information Systems</td>
<td>9</td>
</tr>
<tr>
<td>67-309</td>
<td>Special Topics: Information Assurance and Security</td>
<td>9</td>
</tr>
<tr>
<td>67-317</td>
<td>Mobile Web Development and Usability Testing</td>
<td>9</td>
</tr>
<tr>
<td>67-319</td>
<td>Global Technology Consulting Groundwork</td>
<td>9</td>
</tr>
</tbody>
</table>

**Additions**

The following courses outside of Dietrich College and the College of Fine Arts may count toward the Humanities and Arts requirement in SCS:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-324</td>
<td>Accelerating Innovation and Entrepreneurship</td>
<td>9</td>
</tr>
<tr>
<td>67-327</td>
<td>Web Application Security</td>
<td>9</td>
</tr>
<tr>
<td>67-328</td>
<td>Mobile to Cloud: Building Distributed Applications</td>
<td>9</td>
</tr>
<tr>
<td>67-329</td>
<td>Contemporary Themes in Global Systems</td>
<td>9</td>
</tr>
<tr>
<td>67-330</td>
<td>Technology Consulting in the Community</td>
<td>9</td>
</tr>
<tr>
<td>67-331</td>
<td>Technology Consulting in the Global Community</td>
<td>9</td>
</tr>
<tr>
<td>67-344</td>
<td>Organizational Intelligence in the Information Age</td>
<td>9</td>
</tr>
<tr>
<td>67-353</td>
<td>IT &amp; Environmental Sustainability</td>
<td>9</td>
</tr>
<tr>
<td>67-364</td>
<td>Practical Data Science</td>
<td>9</td>
</tr>
<tr>
<td>67-373</td>
<td>Information Systems Consulting Project</td>
<td>9</td>
</tr>
<tr>
<td>67-390</td>
<td>Independent Study in Information Systems Var.</td>
<td>9</td>
</tr>
<tr>
<td>67-391</td>
<td>Independent Study in Information Systems Var.</td>
<td>9</td>
</tr>
<tr>
<td>67-440</td>
<td>DeTe Mobile Application Design &amp; Development</td>
<td>9</td>
</tr>
<tr>
<td>67-442</td>
<td>Mobile Application Development in iOS</td>
<td>9</td>
</tr>
<tr>
<td>67-475</td>
<td>Innovation in Information Systems</td>
<td>9</td>
</tr>
<tr>
<td>67-490</td>
<td>Practicum in Information Systems</td>
<td>9</td>
</tr>
<tr>
<td>73-230</td>
<td>Intermediate Microeconomics</td>
<td>9</td>
</tr>
<tr>
<td>73-240</td>
<td>Intermediate Macroeconomics</td>
<td>9</td>
</tr>
<tr>
<td>73-274</td>
<td>Econometrics I</td>
<td>9</td>
</tr>
<tr>
<td>73-347</td>
<td>Game Theory Applications for Economics and Business</td>
<td>9</td>
</tr>
<tr>
<td>73-374</td>
<td>Econometrics II</td>
<td>9</td>
</tr>
<tr>
<td>76-481</td>
<td>Introduction to Multimedia Design</td>
<td>9</td>
</tr>
<tr>
<td>76-487</td>
<td>Web Design</td>
<td>9</td>
</tr>
<tr>
<td>80-110</td>
<td>Nature of Mathematical Reasoning</td>
<td>9</td>
</tr>
<tr>
<td>80-210</td>
<td>Logic and Proofs</td>
<td>9</td>
</tr>
<tr>
<td>80-211</td>
<td>Logic and Mathematical Inquiry</td>
<td>9</td>
</tr>
<tr>
<td>80-222</td>
<td>Measurement and Methodology</td>
<td>9</td>
</tr>
<tr>
<td>80-223</td>
<td>Causality and Probability</td>
<td>9</td>
</tr>
<tr>
<td>80-310</td>
<td>Formal Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-311</td>
<td>Undecidability and Incompleteness</td>
<td>9</td>
</tr>
<tr>
<td>80-314</td>
<td>Causal Discovery, Statistics, and Machine Learning</td>
<td>9</td>
</tr>
<tr>
<td>80-315</td>
<td>Modal Logic</td>
<td>9</td>
</tr>
<tr>
<td>80-405</td>
<td>Game Theory</td>
<td>9</td>
</tr>
<tr>
<td>80-411</td>
<td>Proof Theory</td>
<td>9</td>
</tr>
<tr>
<td>80-413</td>
<td>Category Theory</td>
<td>9</td>
</tr>
<tr>
<td>80-521</td>
<td>Seminar on Formal Epistemology: Network Epistemology</td>
<td>9</td>
</tr>
<tr>
<td>85-213</td>
<td>Human Information Processing and Artificial Intelligence</td>
<td>9</td>
</tr>
<tr>
<td>85-219</td>
<td>Biological Foundations of Behavior</td>
<td>9</td>
</tr>
<tr>
<td>85-370</td>
<td>Perception</td>
<td>9</td>
</tr>
<tr>
<td>85-414</td>
<td>Cognitive Neuropsychology</td>
<td>9</td>
</tr>
<tr>
<td>88-251</td>
<td>Empirical Research Methods</td>
<td>9</td>
</tr>
</tbody>
</table>

**School of Computer Science**
Honors Research Thesis

Students considering going on to graduate school in Computer Science or related disciplines should take a wide variety of Computer Science and Mathematics courses, as well as consider getting involved in independent research as early as possible. This would be no later than the junior year and can begin even earlier. Students interested in graduate school in computer science or its related areas are strongly encouraged to participate in the SCS Honors Undergraduate Research Thesis program. Additionally, graduate CS courses can be taken with permission of the instructor and in consultation with an academic advisor.

The goal of the SCS Honors Undergraduate Research Thesis Program is to introduce students to the breadth of tasks involved in independent research, including library work, problem formulation, experimentation, analysis, technical writing and public speaking. In particular, students write a survey paper summarizing prior results in their desired area of research, present a public poster session in December of their senior year describing their current progress, present their final results in an oral summary in the year-end university-wide Undergraduate Research Symposium (Meeting of the Minds) and submit a written thesis at the end of their senior year. Students work closely with faculty research advisors to plan and carry out their research. The SCS Honors Undergraduate Research Thesis (07-599) typically starts in the fall semester of the senior year, and spans the entire senior year. Students receive a total of 36 units of academic credit for the thesis work, 18 units per semester. Students should prepare their research prospectus (i.e. proposal of work) during the spring semester of their junior year, and students in this program are advised to plan their schedules carefully to ensure there is ample time to perform the required research for the thesis during the senior year.

Students interested in research are urged to consult with their undergraduate advisor and the SCS Assistant Dean no later than the end of their sophomore year in order to plan their workload effectively. Although there is no specific GPA requirement to participate, students are expected to have at least a 3.5 GPA in the core SCS topics relevant to their proposed research to be successful in their work. For those students with no background in research, they may consider using Research and Innovation in Computer Science (15-300, 9 units) as an introduction to the research process in their junior year since this course will introduce students to various research projects going on in the School of Computer Science and important skills that are needed to be an effective researcher. This course leads to a subsequent Research Practicum in Computer Science (15-400, 12 units) that allows students to complete a small-scale research study or experiment and present a research poster. Students who use 15-400 to start their senior thesis can use these units toward the required 36 units. Students should consult with their academic advisor concerning how the units earned toward the senior thesis can be used toward elective requirements for their major.

Interested juniors should submit a project prospectus of no more than three pages by the end of their junior year, although submissions over the summer prior to the senior year will also be considered for review. A prospectus must include:

- The name of the research advisor (an SCS faculty member)
- A short abstract (two paragraphs, max)
- A description of the problem to be worked on and its significance
- A tactical description of the proposed research plan, including:
  - a description of the background reading to be carried out,
  - a description of the research contribution,
  - a description of the expected results of the research, and
  - a reasonably detailed timeline for the thesis work
- A bibliography of related work (all references belong here)
- The signature of the research advisor, signifying endorsement of the project and willingness to supervise and evaluate it

Students who need help finding potential advisors should get in touch with the Associate Dean or Assistant Dean for Undergraduate Education. Applications to the program are due by the end of the semester prior to the start of the thesis, typically the end of the Junior Spring semester.

Students successfully completing this thesis will earn SCS College Honors and can compete for various SCS research awards given out during commencement.

Faculty

UMUT ACAR, Associate Professor, Computer Science Department - Ph.D., Carnegie Mellon University; Carnegie Mellon, 2012-

ANIL ADA, Associate Teaching Professor, Carnegie Mellon University - Ph.D., McGill University; Carnegie Mellon, 2014-

HENNY ADMONI, Assistant Professor, Robotics Institute - Ph.D., Yale University; Carnegie Mellon, 2017-

YUVRAJ AGARWAL, Associate Professor, Institute for Software Research - Ph.D., University of California, San Diego; Carnegie Mellon, 2013-

JONATHAN ALDRICH, Professor, Institute for Software Research - Ph.D., University Of Washington; Carnegie Mellon, 2003-

VINCENT ALEVEN, Professor, Human-Computer Interaction Institute - Ph.D., University Of Pittsburgh; Carnegie Mellon, 2000-

DAVID ANDERSEN, Professor, Computer Science Department - Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 2005-

JOHN ANDERSON, R.K. Mellon University Professor - Ph.D., Stanford University; Carnegie Mellon, 1978-

DIMITRIOS APOSTOLOPOULOS, Senior Systems Scientist, Robotics Institute - Ph.D., Carnegie Mellon University; Carnegie Mellon, 1989-

CHRISTOPHER ATKESON, Professor, Robotics Institute - Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 2000-

JAMES BAGNELL, Associate Professor, Robotics Institute - Ph.D., Carnegie Mellon University; Carnegie Mellon, 2004-

MARIA FLORINA BALCAN, Associate Professor, Machine Learning Department - Ph.D., Carnegie Mellon University; Carnegie Mellon, 2014-

STEPHANIE BALZER, Systems Scientist, Carnegie Mellon University - Ph.D., ETH Zurich; Carnegie Mellon, 2016-

ZIV BAR-JOSEPH, Professor, Computational Biology Department - Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 2003-

MATTHEW BASS, Assistant Teaching Professor, Institute for Software Research - M.S., Carnegie Mellon University; Carnegie Mellon, 2012-

LUJO BAUER, Professor, Institute for Software Research - Ph.D., Princeton University; Carnegie Mellon, 2015-

NATHAN BECKMANN, Assistant Professor, Computer Science Department - Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 2017-

TAYLOR BERG-KIRKPATRICK, Assistant Professor, Language Technologies Institute - Ph.D., University of California at Berkeley; Carnegie Mellon, 2016-

KAREN BERNTSEN, Associate Teaching Professor, Human Computer Interaction Institute - M.S., Duquesne University; Carnegie Mellon, 2005-

JEFFREY BIGHAM, Associate Professor, Human-Computer Interaction Institute - Ph.D., University of Washington; Carnegie Mellon, 2013-

ALAN BLACK, Professor, Language Technologies Institute - Ph.D., University Of Edinburgh; Carnegie Mellon, 1999-

GUY BLELLOCH, Associate Dean for Undergraduate Education and Professor, Computer Science Department - Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 1988-

LENORE BLUM, Distinguished Career Professor, Computer Science Department - Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 1999-

MANUEL BLUM, University Professor, Computer Science Department - Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 1999-

CHRISTOPHER BOGART, Systems Scientist, Institute for Software research - Ph.D., Oregon State University; Carnegie Mellon, 2017-

DAVID BOURNE, Principal Systems Scientist, Robotics Institute - M.S., University Of Pennsylvania; Carnegie Mellon, 1980-

DANIEL BOYARSKI, Professor – M.F.A., Indiana University; Carnegie Mellon, 1999–

DIMITRIOS APOSTOLOPOULOS, Senior Systems Scientist, Robotics Institute - Ph.D., Carnegie Mellon University; Carnegie Mellon, 1989-

MELISSA BRIAND, Professor, Institute for Software Research - M.S., Carnegie Mellon University; Carnegie Mellon, 2012-

AMIT BRIER, Assistant Teaching Professor, Institute for Software Research - M.S., University Of Pennsylvania; Carnegie Mellon, 2008-

JONATHAN ALDRICH, Professor, Institute for Software Research - Ph.D., University Of Washington; Carnegie Mellon, 2003-

LUCAS BROOKES, Associate Professor, Institute for Software Research - Ph.D., University Of Pittsburgh; Carnegie Mellon, 2000-

STEPHEN BROOKES, Professor, Computer Science Department - Ph.D., Oxford University; Carnegie Mellon, 1981-
CHRISTOPHER HARRISON, Assistant Professor, Human-Computer Interaction Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2014.


MARTIAL HEBERT, Professor and Director, Robotics Institute – Ph.D., Paris-XI; Carnegie Mellon, 1984.

DAVID HELD, Assistant Professor, Robotics Institute – Ph.D., Stanford University; Carnegie Mellon, 2017.

JAMES HERBSLEB, Professor, Institute for Software Research – Ph.D., University Of Nebraska; Carnegie Mellon, 2002.


MICHAEL HILTON, Assistant Teaching Professor, Institute for Software Research – Ph.D., Oregon State University; Carnegie Mellon, 2017.


JAN HOFFMANN, Assistant Professor, Computer Science Department – Ph.D., Ludwig-Maximilians-Universität and TU Munich; Carnegie Mellon, 2015.

JASON HONG, Associate Professor, Human-Computer Interaction Institute – Ph.D., University Of California at Berkeley; Carnegie Mellon, 2004.

EDUARD HOVY, Research Professor, Language Technologies Institute – Ph.D., Yale University; Carnegie Mellon, 2012.


SCOTT HUDSON, Professor, Human-Computer Interaction Institute – Ph.D., University Of Colorado; Carnegie Mellon, 1997.

FARNAM JAHANIAN, President, Carnegie Mellon University, and Professor, Computer Science Department – Ph.D., University of Texas at Austin; Carnegie Mellon, 2014.

MICHAEL KAESS, Associate Research Professor – Ph.D., Georgia Institute of Technology; Carnegie Mellon, 2013.

TAKEO KANADE, University Professor, Robotics Institute – Ph.D., Kyoto University; Carnegie Mellon, 1980.

EUNSUK KANG, Assistant Professor, Institute for Software Research – Ph.D., Massachusetts Institute of Technology; Carnegie Mellon, 2017.

JOSHUA KANGAS, Assistant Teaching Professor, Computational Biology Department – PhD, Carnegie Mellon University; Carnegie Mellon, 2018.

GEORGE KANTOR, Senior Systems Scientist, Robotics Institute – Ph.D., University of Maryland; Carnegie Mellon, 2002.

CHRISTIAN KASTNER, Associate Professor, Institute for Software Research – Ph.D., University of Magdeburg; Carnegie Mellon, 2012.

GEOFF KAUFMAN, Assistant Professor, Human Computer Interaction Institute – Ph.D., Ohio State University; Carnegie Mellon, 2015.

DILSUN KAYNUR, Assistant Teaching Professor, Computer Science Department – Ph.D., University of Edinburgh; Carnegie Mellon, 2012.


SEYOUNG KIM, Associate Professor, Computational Biology Department – Ph.D., University of California at Irvine; Carnegie Mellon, 2010.

CARL KINDSFORD, Professor, Computational Biology Department – Ph.D., Princeton University; Carnegie Mellon, 2012.

KRIS KITANI, Associate Research Professor, Robotics Institute – Ph.D., University of Tokyo; Carnegie Mellon, 2016.

ANKET KITTUR, Professor, Human-Computer Interaction Institute – Ph.D., University of California At Los Angeles; Carnegie Mellon, 2009.


J. ZICO KOLTER, Associate Professor, Computer Science Department – Ph.D., Stanford University; Carnegie Mellon, 2012.

DAVID KOSBIE, Associate Teaching Professor, Computer Science Department – M.S., Carnegie Mellon University; Carnegie Mellon, 2009.

PRAVESH KOTHARI, Assistant Professor, Computer Science Department – Ph.D., University of Texas at Austin; Carnegie Mellon, 2018.

JOANIS KOUTIS, Adjunct Assistant Professor, Computer Science Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2008.


OLIVER KROEMER, Assistant Professor, Robotics Institute – Ph.D., Technische Universität Darmstadt; Carnegie Mellon, 2017.

CHINMAY KULKARNI, Assistant Professor, Human Computer Interaction Institute – Ph.D., Stanford University; Carnegie Mellon, 2015.

CHRISTOPHER LANGMEAD, Associate Professor, Computational Biology Department – Ph.D., Dartmouth University; Carnegie Mellon, 2004.

CLAIRE LE GOUES, Associate Professor, Institute for Software Research – Ph.D., University of Virginia; Carnegie Mellon, 2013.


TAI-SING LEE, Professor, Computer Science Department – Ph.D., Massachusetts Institute of Technology; Carnegie Mellon, 1996.

LORRAINE LEVIN, Research Professor, Language Technologies Institute – Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 1989.


SIMON LUCEY, Associate Research Professor, Robotics Institute – Ph.D., University of Southern Queensland; Carnegie Mellon, 2002.

JIAN MA, Associate Professor, Computational Biology Department – Ph.D., Pennsylvania State University; Carnegie Mellon, 2016.

JOHN MACKEY, Teaching Professor, Computer Science Department and Mathematics Department – Ph.D., University of Hawaii; Carnegie Mellon, 2003.

MATTHEW MASON, Professor, Robotics Institute – Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 1992.

ROY MAXION, Research Professor, Computer Science Department – Ph.D., University Of Colorado; Carnegie Mellon, 1984.

JAMES MCCANN, Assistant Professor, Robotics Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2017.

BRUCE MCLAREN, Associate Research Professor, Human-Computer Interaction Institute – Ph.D., University Of Pittsburgh; Carnegie Mellon, 2003.

FLORIAN METZE, Associate Research Professor, Language Technologies Institute – Ph.D., Universität Karlsruhe; Carnegie Mellon, 2009.


GARY MILLER, Professor, Computer Science Department – Ph.D., University Of California; Carnegie Mellon, 1988.


TOM MITCHELL, University Professor, Machine Learning Department – Ph.D., Stanford University; Carnegie Mellon, 1986.

STEFAN MITSCHE, Systems Scientist, Computer Science Department – Ph.D., Johannes Kepler University; Carnegie Mellon, 2016.

HOSEIN MOHIMANI, Assistant Professor, Computational Biology Department – Ph.D., University of California, San Diego; Carnegie Mellon, 2017.

ALAN MONTGOMERY, Associate Professor of Marketing – Ph.D., University Of Chicago; Carnegie Mellon, 1999.

ANDREW MOORE, Dean and Professor, School of Computer Science – Ph.D., University Of Cambridge; Carnegie Mellon, 1993.

IGOR MORDATCH, Assistant Professor, Robotics Institute – Ph.D., University of Washington; Carnegie Mellon, 2017.
LOUIS-PHILIPPE MORENCY, Associate Professor, Language Technologies Institute – Ph.D., Massachusetts Institute of Technology; Carnegie Mellon, 2015–

JAMES MORRIS, Professor, Emeritus, Human-Computer Interaction Institute – Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 1982–

DAVID MORTENSEN, Research Scientist, Language Technologies Institute – Ph.D., University of California, Berkeley; Carnegie Mellon, 2015–

JACK MOSTOW, Research Professor Emeritus, Robotics Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1992–

TODD MOWRY, Professor, Computer Science Department – Ph.D., Stanford University; Carnegie Mellon, 1997–


ROBERT MURPHY, Professor and Department Head, Computational Biology Department – Ph.D., California Institute Of Technology; Carnegie Mellon, 1983–

BRAD MYERS, Professor, Human-Computer Interaction Institute – Ph.D., University Of Toronto; Carnegie Mellon, 1987–

PRIYA NARASIMHAN, Professor – Ph.D., University Of California; Carnegie Mellon, 2001–

SRINIVASA NARASIMHAN, Professor, Robotics Institute – Ph.D., Columbia University; Carnegie Mellon, 2004–

GRAHAM NEUBIG, Assistant Professor, Language Technologies Institute – Ph.D., Kyoto University; Carnegie Mellon, 2016–

CHRISTINE NEUWIRTH, Professor – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2004–

ILLAH NOURBAKHSH, Professor, Robotics Institute – Ph.D., Stanford University; Carnegie Mellon, 1997–

ERIC NYBERG, Professor, Language Technologies Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1989–

RYAN O’DONNELL, Professor, Computer Science Department – Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 2006–

KEMAL OFLAZER, Associate Dean of Research, Language Technologies Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2008–

AMY OGAN, Assistant Professor, Human-Computer Interaction Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2014–

DAVID O’HALLARON, Professor, Computer Science Department – Ph.D., University of Virginia; Carnegie Mellon, 1989–

IRVING OPPENHEIM, Professor – Ph.D., University of Cambridge; Carnegie Mellon, 1973–

MATTHEW O’TOOLE, Assistant Professor, Robotics Institute and Computer Science Department – Ph.D., University of Toronto; Carnegie Mellon, 2018–

BRYAN PARNO, Associate Professor – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2017–

ANDREW PAVLO, Associate Professor, Computer Science Department – Ph.D., Brown University; Carnegie Mellon, 2013–

ADAM PERER, Assistant Research Professor, Human Computer Interaction Institute – Ph.D., University of Maryland; Carnegie Mellon, 2018–

JUERGEN PFEFFER, Assistant Research Professor, Institute for Software Research – Ph.D., Vienna University of Technology; Carnegie Mellon, 2012–

ANDREAS PFENNING, Assistant Professor, Computational Biology Department – Ph.D., Duke University; Carnegie Mellon, 2015–

FRANK PFENNING, Professor, Computer Science Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1986–

ANDRE PLATZER, Associate Professor, Computer Science Department – Ph.D., University of Oldenburg; Carnegie Mellon, 2008–

BARNABAS POCZOS, Associate Professor, Machine Learning Department – Ph.D., Eötvös Loránd University; Carnegie Mellon, 2012–

NANCY POLLARD, Professor, Robotics Institute – Ph.D., Massachusetts Institute Of Technology; Carnegie Mellon, 2002–

ARIEL PROCACCIA, Associate Professor, Computer Science Department – Ph.D., The Hebrew University of Jerusalem; Carnegie Mellon, 2011–

BRIAN RAILING, Assistant Teaching Professor, Computer Science Department – Ph.D., Georgia Institute Of Technology; Carnegie Mellon, 2016–

BHIKSHA RAJ RAMAKRISHNAN, Professor, Language Technologies Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2008–

DEVA RAMANAN, Associate Professor, Robotics Institute – Ph.D., University of California at Berkeley; Carnegie Mellon, 2015–

PRADEEP RAVIKUMAR, Associate Professor, Machine Learning Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2016–

RAJ REDDY, University Professor, Institute for Software Research – Ph.D., Stanford University; Carnegie Mellon, 1969–

MARGARET REID-MILLER, Assistant Teaching Professor, Computer Science Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2002–

ANDREJ RISTESKI, Assistant Professor, Machine Learning Department – Ph.D., Princeton University; Carnegie Mellon, 2019–

KELLY RIVERS, Assistant Teaching Professor, Computer Science Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2017–

CAMERON RIVIERE, Research Professor, Robotics Institute – Ph.D., Johns Hopkins University; Carnegie Mellon, 1995–

DAVID ROOT, Associate Teaching Professor, Institute for Software Research – M.P.M., Carnegie Mellon University; Carnegie Mellon, 2002–

CAROLYN ROSE, Professor, Language Technologies Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2003–

RONALD ROSENFELD, Professor and Department Head, Machine Learning Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1995–

STEPHANIE ROSENTHAL, Assistant Teaching Professor, Computer Science Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2019–

STEVEN RUDICH, Professor, Computer Science Department – Ph.D., University of California; Carnegie Mellon, 1989–

ALEXANDER RudNICKY, Professor Emeritus, Language Technologies Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1980–


MAJD SAKR, Teaching Professor, Computer Science Department – Ph.D., University of Pittsburgh; Carnegie Mellon, 2006–

RUSLAN SALAKHUTDINOV, Associate Professor, Machine Learning Department – Ph.D., University of Toronto; Carnegie Mellon, 2016–

TUOMAS SANDHOLM, Professor, Computer Science Department – Ph.D., University of Massachusetts; Carnegie Mellon, 2001–

MAHADEV SATYANARAYAN, Professor, Computer Science Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1983–

RICHARD SCHEINES, Dean, Dietrich College and Professor, Philosophy – Ph.D., University of Pittsburgh; Carnegie Mellon, 1988–

SEBASTIAN SCHERER, Associate Research Professor, Robotics Institute – Ph.D, Carnegie Mellon University; Carnegie Mellon, 2010–

WILLIAM SCHERLIS, Professor and Director, Institute for Software Research – Ph.D., Stanford University; Carnegie Mellon, 1989–

BRADLEY SCHMERL, Principal Systems Scientist, Computer Science Department – Ph.D., Flinders University of South Australia; Carnegie Mellon, 2000–

JEFF SCHNEIDER, Research Professor, Robotics Institute – Ph.D., University of Rochester; Carnegie Mellon, 1995–

DANA SCOTT, Professor Emeritus, Computer Science Department – Ph.D., Princeton University; Carnegie Mellon, 1981–

TEDDY SEIDENFELD, Herbert A. Simon Professor – Ph.D., Columbia University; Carnegie Mellon, 1985–

SRINIVASAN SESHAN, Professor and Department Head, Computer Science Department – Ph.D., University of California; Carnegie Mellon, 2000–

NIHAR SHAH, Assistant Professor, Machine Learning Department – Ph.D., University of California at Berkeley; Carnegie Mellon, 2017–

MICHAEL SHAMOS, Teaching Professor, Language Technologies Institute and Institute for Software Research – Ph.D., Yale University; Carnegie Mellon, 1975–

MARY SHAW, University Professor, Institute for Software Research - Ph.D., Carnegie Mellon University; Carnegie Mellon, 1965–

YASER SHEIKH, Associate Professor, Robotics Institute – Ph.D., University of Central Florida; Carnegie Mellon, 2008–

Justine Sherry, Assistant Professor, Computer Science Department – Ph.D., University of California at Berkeley; Carnegie Mellon, 2017 –

Hirokazu Shira, Assistant Professor, Human Computer Interaction Institute – Ph.D., Yale University; Carnegie Mellon, 2019 –

Douglas Sicker, Professor, Institute for Software Research – Ph.D., University of Pittsburgh; Carnegie Mellon, 2014 –

Mel Siegel, Associate Research Professor Emeritus, Robotics Institute – Ph.D., University of Colorado; Carnegie Mellon, 1982 –

Daniel Siewiorek, University Professor, Human-Computer Interaction Institute – Ph.D., Stanford University; Carnegie Mellon, 1972 –

Reid Simmons, Research Professor, Robotics Institute – Ph.D., Massachusetts Institute of Technology; Carnegie Mellon, 1988 –

Aarti Singh, Associate Professor, Machine Learning Department – Ph.D., University of Wisconsin At Madison; Carnegie Mellon, 2009 –

Rita Singh, Associate Research Professor, Language Technologies Institute – Ph.D., National Geophysical Research Institute; Carnegie Mellon, 2010 –

Sanjiv Singh, Research Professor, Robotics Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1994 –

Daniel Sletor, Professor, Computer Science Department – Ph.D., Stanford University; Carnegie Mellon, 1985 –

Stephen Smith, Research Professor, Robotics Institute – Ph.D., University of Pittsburgh; Carnegie Mellon, 1982 –

Peter Spirites, Professor, Philosophy – Ph.D., University of Pittsburgh; Carnegie Mellon, 1983 –

John Stapper, Assistant Professor, Human-Computer Interaction Institute – Ph.D., University of North Carolina At Charlotte; Carnegie Mellon, 2009 –

Ravi Starzl, Assistant Teaching Professor, Language Technologies Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2015 –

Peter Steenkiste, Professor, Computer Science Department – Ph.D., Stanford University; Carnegie Mellon, 1987 –

Mark Stel, Teaching Professor, Computer Science Department – B.S., Pace University; Carnegie Mellon, 1981 –

Aaron Steinfeld, Associate Research Professor, Robotics Institute – Ph.D., University of Michigan; Carnegie Mellon, 2001 –

Anthony Stentz, Research Professor, Robotics Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1989 –

George Stetten, Adjunct Research Professor, Robotics Institute – Ph.D., University of North Carolina; Carnegie Mellon, 1999 –


Klaus Sutner, Teaching Professor, Computer Science – Ph.D., University of Munich; Carnegie Mellon, 1995 –

Katia Sycara, Research Professor, Robotics Institute – Ph.D., Georgia Institute of Technology; Carnegie Mellon, 1987 –

Ameet Talwalkar, Assistant Professor, Machine Learning Department – Ph.D., New York University, Courant Institute; Carnegie Mellon, 2017 –

Zeynep Temel, Assistant Professor, Robotics Institute – Ph.D., Sabanci University (Istanbul, Turkey); Carnegie Mellon, 2019 –

David Touretzky, Research Professor, Computer Science Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1984 –

Matthew Travers, Systems Scientist, Robotics Institute – Ph.D., Northwestern University; Carnegie Mellon, 2013 –

Yuja Tsvetkov, Assistant Professor, Language Technologies Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2017 –

Bogdan Vasilescu, Assistant Professor, Institute for Software Research – Ph.D., Eindhoven University of Technology; Carnegie Mellon, 2016 –

Manuela Veloso, University Professor, Computer Science – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1992 –

Rashmi Vinayak, Assistant Professor, Computer Science Department – Ph.D., University of California at Berkeley; Carnegie Mellon, 2017 –

Pat Virtue, Assistant Teaching Professor, Computer Science Department and Machine Learning Department – Ph.D., University of California at Berkeley; Carnegie Mellon, 2018 –


Howard Wactlar, Research Professor, Computer Science Department – M.S., University of Maryland; Carnegie Mellon, 1967 –

Alexander Waibel, Professor, Language Technologies Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 1988 –

Weina Wang, Assistant Professor, Computer Science Department – Ph.D., Arizona State University; Carnegie Mellon, 2018 –

Leila Wehbe, Assistant Professor, Machine Learning Department – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2018 –

David Wettergreen, Research Professor, Robotics Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2000 –


Wei Wu, Associate Research Professor, Computational Biology Department – Ph.D., Rutgers University; Carnegie Mellon, 2011 –

Poe Eric Xing, Professor, Machine Learning Department – Ph.D., University Of California At Berkeley; Carnegie Mellon, 2004 –

Min Xu, Assistant Research Professor, Computational Biology Department – Ph.D., University of Southern California; Carnegie Mellon, 2016 –

Jean Yang, Assistant Professor, Computer Science Department – Ph.D., Massachusetts Institute of Technology; Carnegie Mellon, 2016 –

Yiming Yang, Professor, Language Technologies Institute – Ph.D., Kyoto University; Carnegie Mellon, 1996 –

Lining Yao, Assistant Professor, Human Computer Interaction Institute – Ph.D., Massachusetts Institute of Technology; Carnegie Mellon, 2017 –

Wenzhen Yuan, Assistant Professor, Robotics Institute – Ph.D., Massachusetts Institute of Technology; Carnegie Mellon, 2019 –

Haiyi Zhu, Assistant Professor, Human Computer Interaction Institute – Ph.D., Carnegie Mellon University; Carnegie Mellon, 2019 –