The Department of Computer Science offers programs of study leading to the Master of Science in Computer Science and Doctor of Philosophy degrees. Admission to these programs is highly competitive and based upon academic record, GRE scores, and letters of recommendation. It is strongly suggested that applicants present evidence of mathematical maturity as well as competence in computer science. Full details of the requirements for degree programs are available from the department upon request.

Since very few specific courses are required for the graduate degree programs, all candidates in the M.S. program are expected to demonstrate proficiency in the fundamental areas of computer science by taking four core courses in specific areas.

Both thesis (Plan A) and non-thesis (Plan B) options are available in the program leading to the Master of Science degree. A project is required of non-thesis candidates. No language requirement (other than proficiency in English) is mandated.

The doctoral program in Computer Science is a research degree granted primarily on the demonstration of substantial research achievement. To be admitted to candidacy for this degree, candidates must satisfy the requirements of the Graduate School and pass the qualifying examination. This examination consists of written and oral sections covering breadth in computer science as well as depth in a specific area.

Areas of research actively pursued by faculty and students within the department include: artificial intelligence, numerical methods, computational science, operating systems, distributed computing and networking, theory of computation, data base technology, design and analysis of algorithms, cryptography, graphics and vision, parallel processing, data mining, bioinformatics and software engineering. Courses in these and other areas are available to permit students to complete studies of sufficient breadth and depth prior to engaging in independent research.

Admissions
The admission decision is made by the Higher Degrees Committee based on the overall application file consisting of GRE scores, TOEFL scores (for international students), GPA, grades in CS and Math courses, background in computer science, letters of recommendation, and statement of purpose.

Students admitted to the doctoral program in Computer Science who have been awarded a master’s degree in Computer Science from another institution are not eligible to receive a master’s degree in Computer Science from the University of Kentucky. Exceptions to this policy must be approved by the Graduate School Dean upon petition by the Director of Graduate Studies.

Graduate Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>CS 405G</td>
<td>Introduction To Database Systems</td>
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<td>CS 415G</td>
<td>Graph Theory (Same As MA415G)</td>
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<tr>
<td>CS 416G</td>
<td>Principles Of Operations Research I (Same As MA 416G)</td>
<td>(3)</td>
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<td>CS 441G</td>
<td>Compilers For Algorithmic Languages</td>
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<td>CS 450G</td>
<td>Fundamentals Of Programming Languages</td>
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<td>CS 463G</td>
<td>Introduction To Artificial Intelligence</td>
<td>(3)</td>
</tr>
<tr>
<td>CS 470G</td>
<td>Introduction To Operating Systems</td>
<td>(3)</td>
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CS 471G Networking And Distributed Operating Systems (3)
CS 485G Topics In Computer Science (Subtitle Required) (2-4)
CS 505 Intermediate Topics In Database Systems (3)
CS 515 Algorithm Design (3)
CS 521 Computational Sciences (3)
CS 522 Matrix Theory And Numerical Linear Algebra I (Same As MA 522) (3)
CS 535 Intermediate Computer Graphics (3)
CS 536 Situated Computing (3)
CS 537 Numerical Analysis (Same As MA/EGR 537) (3)
CS 541 Compiler Design (3)
CS 555 Declarative Programming (3)
CS 570 Modern Operating Systems (3)
CS 571 Computer Networks (3)
CS 575 Models Of Computation (3)
CS 585 Intermediate Topics In Computer Science (Subtitle Required) (3)
CS 587 Microcomputer Systems Design (Same As EE 587) (3)
CS 610 Master's Project (3)
CS 611 Research In Computer Science (3)
CS 612 Independent Work In Computer Science (1-3)
CS 616 Software Engineering (3)
CS 617 Requirements Engineering (3)
CS 618 Software Design (3)
CS 619 Software Testing And Quality Evaluation (3)
CS 621 Parallel And Distributed Computing (3)
CS 622 Matrix Theory And Numerical Linear Algebra II (Same As MA 622) (3)
CS 623 Parallel Iterative Computing (3)
CS 630 Free-Form Solid Modeling (3)
CS 631 Computer-Aided Geometric Design (3)
CS 633 3D Computer Animation (3)
CS 634 Multimedia Systems (3)
CS 635 Image Processing (Same As EE 635) (3)
CS 636 Computer Vision (3)
CS 637 Exploring Virtual Worlds (3)
CS 642 Discrete Event Systems (Same As EE 642) (3)
CS 655 Programming Languages (3)
CS 660 Topics In Artificial Intelligence (Subtitle Required) (3)
CS 663 Artificial Intelligence (3)
CS 670 Distributed Operating System Theory (3)
CS 671 Advanced Computer Networks (3)
CS 673 Error Correcting Codes (3)
CS 676 Parallel Algorithms (3)
CS 677 Computational Geometry (3)
CS 678 Cryptography (3)
CS 680 Seminar In Computer Science (2)
CS 682 Switching Theory (3)
CS 683 Finite-State Machines (3)
CS 684 Special Topics In Vision, Graphics And Multimedia (Subtitle Required) (3)
CS 685 Special Topics In Computer Science (Subtitle Required) (3)
CS 686 Special Topics In The Theory Of Computation (Subtitle Required) (3)
CS 687 Special Topics In Systems (3)
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<th>Course Code</th>
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<td>CS 688</td>
<td>Neural Networks (Same As EE 688)</td>
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<td>CS 689</td>
<td>Special Topics In Numerical And Scientific Computation (Subtitle Required)</td>
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<td>CS 690</td>
<td>Operating Systems Theory</td>
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<td>Master's Thesis Research</td>
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<td>CS 749</td>
<td>Dissertation Research</td>
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<td>CS 768</td>
<td>Residence Credit For Master’s Degree</td>
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<td>CS769</td>
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