Master of Science in Computer Science

100% Online

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Connect with one of our enrollment counselors

online@louisville.edu
800.871.8635

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The University of Louisville is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACSCOC). For more information visit www.louisville.edu/accreditation
For program availability in your state visit uofl.me/sarstates

Updated: 06.11.19
About Us

About University of Louisville

The University of Louisville (UofL) is a state supported research university located in Kentucky’s largest metropolitan area that offers 170 majors, degrees, certificates and professional development programs.

The University of Louisville’s mission is to be a premier, nationally recognized metropolitan research university with a commitment to the liberal arts and sciences and to the intellectual, cultural, and economic development of our diverse communities and citizens through the pursuit of excellence.

With a student body exceeding 22,500 and with more than 6,500 faculty members, the University of Louisville paves the way for students of all ages to achieve their academic, professional and personal goals through quality education.

About UofL Online Learning

The University of Louisville understands the challenges of adult professionals who want to earn a college degree and extends its education offerings through UofL Online Learning to connect nontraditional students with flexible online education options. Online learning helps nontraditional students acquire the necessary knowledge and skills in a convenient and affordable manner, to secure or advance their career.

UofL Online Learning delivers a wide variety of online courses and in-demand undergraduate, graduate, and certificate programs completely online to students in the U.S. and around the world.

About University of Louisville J.B. Speed School of Engineering

The Speed Scientific School was established in 1925 as a memorial to the late James Breckenridge Speed with an endowment by his son and daughter, Dr. William S. Speed and Mrs. Olive Speed Sackett of Louisville. The income from this endowment is used exclusively as a supplementary support for the activities of the school.

James Breckenridge Speed (1844-1912), an industrial pioneer in the city of Louisville, was the scion of an illustrious Kentucky family. He was a leader in the establishment of Louisville’s street railway system. He also developed and operated large coal interests in the Commonwealth of Kentucky and was among the first to recognize the significance that Portland Cement would have in the growth of America. The industries in which he maintained an active interest until his death in 1912 have been a nucleus around which the city of Louisville and its greater metropolitan area have grown to their present stature. It is fitting that his memory is perpetuated in an engineering school that bears his name.

Dr. William S. Speed and Mrs. Olive Speed Sackett contributed generously to the building of the school, having made additional grants toward the erection of the James B. Speed Building, Frederic M. Sackett Hall, and William S. Speed Hall. Mrs. Virginia Speed, wife of Dr. Speed, also contributed gifts and financial support prior to her death in 1969.

In 2003, the J.B. Speed Scientific School officially changed its name to the J.B. Speed School of Engineering.

Accreditation

The University of Louisville is accredited by the Commission on the Colleges of the Southern Association of Colleges and Schools to award associate, bachelor, master, specialist, doctoral, and first-professional degrees (D.M.D., J.D., M.D.).
Master of Science in Computer Science – Online Program Info

The University of Louisville’s J.B. Speed School of Engineering has been educating technical professionals since 1924 and features classes and research taught by internationally recognized faculty as well as state-of-the-art computer and networking laboratories.

The Master of Science in Computer Science program is available for interested individuals who have an adequate background, but do not necessarily have a baccalaureate degree in engineering or computer science. The program areas include foundations, software, analytics, electives, and a project option. Students may complete the program entirely online, or combine online classes with on-campus classes.

Program Benefits

• 100% online
• Courses taught by award-winning faculty
• 30 credit hour curriculum
• Students may transfer in 6 credit hours of graduate courses from other accredited universities pending department review
• Classes are offered year-round

Program Structure

Because all courses in the Computer Science program are taught 100% online, students are able to attain a computer science degree on a flexible schedule.

Students can graduate with the MS in Computer Science degree within 24 months, while learning from faculty with distinguished academic credentials, industry experience and a strong commitment to applied research.

Program Completion Requirements

• Completion of 30 credit hours of approved coursework (24 credit hours must be completed at University of Louisville)
• A cumulative GPA of 3.0 (on a 4.0 scale)

Careers and Salary Information

Computers are used in virtually every aspect of our lives today, from desktops at home and work to large systems supporting government and industry to supercomputers and grids of networked processors expanding the frontiers of science and technology.

Not surprisingly, computer professionals are employed in a wide variety of environments, including computer and electronic product manufacturing, other businesses and industries, academia and government. Jobs for qualified computer scientists and engineers are among the fastest growing occupations (U.S. Bureau of Labor Statistics, www.bls.gov).

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## Master of Science in Computer Science – Online Curriculum

### Prerequisites

University of Louisville’s Master of Science in Computer Science online program is designed for students who have earned a bachelor’s degree in computer science/computer engineering (CECS) but it is also available to applicants who have earned other degrees.

To be admitted, students must have a technical degree or relevant experience. Non-computer science candidates often need to complete undergraduate prerequisites before applying to the master’s program.

**Important Note:** The actual number and type of prerequisites is determined on a case-by-case basis, based on candidate’s official transcripts and evaluation of transferable credit. Also, the length of the program will depend on the number of prerequisites needed for the completion of graduate coursework. If you are unsure of your qualifications, please contact Online Learning for assistance.

All prerequisite courses are offered online by UofL:

- CECS 130: Introduction to Programming Languages (3 credits)
- CECS 310: Discrete Structures (3 credits)
- CECS 503: Survey of Computer Engineering and Computer Science (3 credits)

<table>
<thead>
<tr>
<th>Category</th>
<th>Online Courses¹</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>
| Foundation Course | CECS 504 Automata Theory  
CECS 619 Algorithms             | 1 course required 3 |
| Software        | CECS 516 Computer Networks  
CECS 535 Introduction to Databases  
CECS 545 Artificial Intelligence  
CECS 550 Software Engineering  
CECS 629 Distributed Systems  
CECS 630 Advanced Databases and Warehousing  
CECS 640 Internet Applications | 2 courses required 6 |
| Analytic        | CECS 506 Modeling and Analysis  
CECS 522 Evaluation of Computer Systems  
CECS 563 Experimental Design  
CECS 620 - Combinatorial Optimization & Modern Heuristics  
CECS 622 - Simulation and Modeling Discrete Systems  
CECS 627 Digital Image Processing  
CECS 632 Data Mining | 2 courses required 6 |
| Electives       | 3 CECS Electives                                                                 | 3 required courses 9 |

**Select Thesis Option Or Project Option**

<table>
<thead>
<tr>
<th>Option</th>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis Option</td>
<td>CECS 690 MS Thesis</td>
<td>3 required courses 6</td>
</tr>
<tr>
<td>Project Option</td>
<td>CECS 696 – CECS Project (3) + One elective* course (3)</td>
<td>2 required courses 6</td>
</tr>
</tbody>
</table>

**Total Credit Hours** 30³

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¹ Some courses are semester-specific and subject to change.

² For the thesis option, a student is required to select both an approved M.S. thesis topic and the director and members of the thesis committee during the first semester of Graduate Studies. The thesis director must give approval for enrollment in CECS 690.

³ Candidates for the Master of Science degree must have a minimum final cumulative grade point average of 3.00 for all academic work attempted in Graduate Studies.
Admission

<table>
<thead>
<tr>
<th>Deadline for Submission of all Materials</th>
<th>Term/Start</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 1</td>
<td>Fall</td>
</tr>
<tr>
<td>November 30</td>
<td>Spring</td>
</tr>
<tr>
<td>April 1</td>
<td>Summer</td>
</tr>
</tbody>
</table>

Admission Requirements

Applicants for admission to the Master of Science in Computer Science program must provide the following:

- Completed application for admission
- $65 non-refundable application fee
- Evidence of a bachelor’s degree with a minimum 2.75 cumulative grade point average (GPA) on a 4.0 scale. Note: Applicants with bachelor’s degrees outside Computer Engineering/Computer Science may need to complete undergraduate prerequisites before applying to the master’s program. See page 4 of this ePacket for full details.
- Official transcripts of all undergraduate and graduate work.
- Minimum test scores on the Graduate Record Examination (GRE) of 295 (Verbal and Quantitative scores combined).
- Two recommendation forms (See Section VII of the application for admission).
- Personal statement or current resume

International Students

If you live outside of the United States and intend to complete an online academic program from your home country, be sure to view special requirements for international students.

International students whose primary language is not English must show English language proficiency by either:

- TOEFL examination: [http://www.ets.org/toefl](http://www.ets.org/toefl)
  - Minimum scores: 550 on the paper-based TOEFL, 213 on the computer-based TOEFL or 79-80 on Internet-based TOEFL
- International English Language Testing System (IELTS) examination: [www.ielts.org](http://www.ielts.org)
  - Minimum score: 6.5
- Exit examination for the advanced level of the Intensive English as a Second Language Program at the University of Louisville: [http://louisville.edu/english/iesl](http://louisville.edu/english/iesl)

Note: International students will not be issued a U.S. visa to enroll in the MS in Computer Science graduate program online, since there is no on-campus attendance requirement.

Send admission materials to the Graduate Admissions office at the following address:

University of Louisville
School of Interdisciplinary and Graduate Studies
2211 S Brook St, Houchens Bldg, Rm 105
Louisville, Kentucky 40292
United States of America

Or email to: gradadm@louisville.edu

For more application instructions, go to [http://louisville.edu/graduate/futurestudents/apply-materials/application](http://louisville.edu/graduate/futurestudents/apply-materials/application)

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Tuition and Financial Aid

Tuition for online courses is the same for both in-state and out-of-state students.

Online Degree Tuition

<table>
<thead>
<tr>
<th>Tuition - Graduate online course</th>
<th>$714 per credit hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance learning surcharge</td>
<td>$50 per credit hour</td>
</tr>
<tr>
<td>Active-duty* and Coast Guard service members</td>
<td>$250 per credit hour (see our Military Tuition Discounts page)</td>
</tr>
<tr>
<td>Qualifying members of the Reserve Component and National Guard eligible for Title X (Federal) TA</td>
<td>May be eligible for $250 per credit hour tuition assistance rate</td>
</tr>
</tbody>
</table>

*Active-Duty is defined as on orders for 180 days or more.

Online courses are charged at a different hourly rate than regular courses. Students are charged in full for online courses according to those rates even if taking a full-time course load. Tuition rate does not include costs associated with a specific course or program, such as textbooks. If you’re receiving a tuition scholarship, please check the monetary value to determine whether the cost of online courses is covered.

Note: Tuition and fees are subject to change at any time without prior notice. The summary on this page is intended to provide a quick reference for students. For more information and updates, visit the UofL Bursar’s page.

Financial Aid

Graduate students enrolled in the Master of Science in Computer Science at UofL are eligible for federal financial aid in the form of unsubsidized Stafford Loans during an academic year (fall, spring and summer).

Here are the steps for first-time financial aid applicants:

1. Assemble your tax and asset information, such as your IRS forms, W2s, 1040s, etc.

2. Go to http://www.fafsa.gov to file your FAFSA form (Free Application for Federal Student Aid). You are encouraged to use the IRS Data Retrieval Tool within the FAFSA to transmit your tax information directly from the IRS to your FAFSA. Be sure to apply for your PIN during the FAFSA filing process. Use the PIN to electronically sign your FAFSA. (Our FAFSA school code is 001999.)

3. Once your FAFSA if processed by the U.S. Department of Education, you will be sent a Student Aid Report (SAR). If you filed electronically, the SAR will be sent to you via email. If you filed by paper or did not provide an email address, the SAR will be sent to you by mail.

4. Review the SAR for comments and incorrect information. If accurate, keep the SAR for your records. If you find any errors, you can correct them by returning the paper SAR or by making corrections to a processed FAFSA online.

Note: Graduate students do not qualify for departmental funding or financial aid (from J.B. Speed School of Engineering).

The University of Louisville is committed to ensuring you’re knowledgeable about all of your financial aid options. UofL offers flexible payment options for students, including a payment plan, and accepts military benefits or employer tuition assistance payment methods.

Contact Financial Aid: Email: finaid@louisville.edu Phone: 502.852.5511
Get Ready For Your Online Classroom

Tech Requirements

You will need the following hardware and software in order to access your courses online, work on and submit assignments, communicate with professors and peers, and successfully complete your courses and your degree program:

<table>
<thead>
<tr>
<th></th>
<th>Windows</th>
<th>Mac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal computer</td>
<td>With administrative rights (the ability to download software and change security settings)</td>
<td>With administrative rights (the ability to download software and change security settings)</td>
</tr>
<tr>
<td>Broadband Internet connection</td>
<td>Speed of 512 kb/s or higher for DSL or 1 Mbps or higher for (upload) cable connection</td>
<td>Speed of 512 kb/s or higher for DSL or 1 Mbps or higher for (upload) cable connection</td>
</tr>
<tr>
<td>Operating system</td>
<td>Windows</td>
<td>Mac OSX 10.5 or higher</td>
</tr>
<tr>
<td>Microsoft Office</td>
<td>2010 or higher</td>
<td>iWork or Microsoft Office 2011</td>
</tr>
</tbody>
</table>

Go to [http://uofl.me/2BzWfcC](http://uofl.me/2BzWfcC) to ensure that your computer is properly set up and that your browser is compatible.

FAQs

1. What are the benefits of online learning?

The biggest benefit of online learning is that you can work to earn your degree from your own home while raising a family, working full-time or experiencing particular life circumstances that make commuting to campus difficult or impossible. No presence on campus is necessary to attend online classes – you can learn from the comfort of your own home, office or anywhere else in the world.

2. How is the online program different than the one on-campus?

No, there is no difference between the two. Your diploma will not indicate whether you attended college on campus or online and your credentials will be the same. In fact, learning online enables you to gain additional skills like time management, written communication or self-discipline, and helps you acquire the necessary credentials to move up in your organization, pursue a different career or reach your personal and professional development goals.

3. Are courses taught by UofL faculty?

Yes, at UofL you are taught by the same world-class faculty as our on-campus students. You read the same books, do many of the same assignments and earn the same degrees. The biggest difference is that you are able to do it in a way best fits your lifestyle.

4. I am deployed on active duty. Can I take online classes at UofL?

Yes! You can take online classes from anywhere in the world, provided you have consistent Internet access. Our faculty and staff are very supportive of those who serve the country here in U.S. or around the world and work hard to provide all needed learning resources so you can succeed.

5. Can I receive credit for courses completed at another institution?

Once you are admitted to the program, you may request to transfer up to six credit hours if your UofL advisor approves the request. Transfer requests are then submitted to the School of Interdisciplinary and Graduate Studies.

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Contact Us

UofL Online Learning
Office hours: Monday - Thursday 8:30 a.m. to 6:00 p.m. ET, Friday 8:30 a.m. to 4:30 p.m. ET

Online Learning Enrollment Counselors
Email: online@louisville.edu
Phone: 800.871.8635

J.B. Speed School of Engineering
Office hours: Monday – Friday 7:30 a.m. to 3:30 p.m. ET

Leigh Ann Elles
Graduate Academic Counselor
Email: laelle01@louisville.edu
Phone: 502.852.4415

UofL Office of Graduate Admissions
Office hours: Monday – Friday 9 a.m. to 4 p.m. ET
Email: gradadm@louisville.edu
Phone: 502.852.6531
Fax: 502.852.6526

UofL Office of Financial Aid
Office hours: Monday – Friday 9 a.m. to 4 p.m. ET
Email: finaid@louisville.edu
Phone: 502.852.5511
Fax: 502.852.0812

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