Undergraduate Programs in Computer Science (C.S.)

Located in the Thomas Maes Building Office 57, the Department of Computer Science is one of twelve units within the College of Arts and Sciences. Based on their personal and career goals, CS majors may select between one of two major degree tracks: the B.S. in Computer Science degree track or the B.S. in Computer Information Science degree track. The department likewise offers three academic minors (Computer Science, Computer Information Science, and Web Design), two academic concentrations (Game Development and Bioinformatics) and one certificate program (Game Design and Development).

About Computer Science

Every child in every classroom, every teacher in every school, and every person in every community is affected by technology, and the tools of technology were founded by innovative computer scientists. Skills mastered while studying computer science enable students to analyze, synthesize, and evaluate information, to articulate problems, and to develop solutions, thereby helping to prepare them for the competitive world in which they live.

Mission Statement

The department will offer an education that is highly regarded by students, colleagues, industry, and other users for its quality in teaching and in pure and applied research. We believe that the work environment should be a laboratory by participating in professional and associated activities. These include the Lamar Chapter of the Association of Computing Machinery (ACM), Upsilon Pi Upsilon (UPE) Honor Society, and League of Legends. Their activities include the ACM Spring banquet, ACM programming competition, ACM LAN parties, League of Legends parties, International Food Festival and more. Our department has a very good student to faculty ratio. The department also participates in the Cooperative Education Program and Career Forum, which allows qualifying students to alternate semesters of college study with on-the-job experience and training. The freshman and sophomore students (i.e., those with less than 60 credit hours) are offered by the Undergraduate Advising Center) while the rest of them are advised by our Faculty.

Our Students

Computer science develops students’ computational and critical thinking skills and shows them how to create, not simply use, new technologies. This fundamental knowledge is needed to prepare students for the 21st century, regardless of their ultimate field of study or occupation. Our students earn their classroom and laboratory experiences by participating in professional and associated activities. These include the Lamar Chapter of Association of Computing Machinery (ACM), Upsilon Pi Upsilon (UPE) Honor Society, and League of Legends. Their activities include the ACM Spring banquet, ACM programming competition, ACM LAN parties, League of Legends parties, International Food Festival and more. Our department has a very good student to faculty ratio. The department also participates in the Cooperative Education Program and Career Forum, which allows qualifying students to alternate semesters of college study with on-the-job experience and training. The freshman and sophomore students (i.e., those with less than 60 credit hours) are offered by the Undergraduate Advising Center) while the rest of them are advised by our Faculty.

Program Educational Objectives

1. Students in the Program will develop professional skills and the necessary technical knowledge both in breadth and depth that prepare them for immediate employment or advanced study in computer science.

2. Graduates of the Computer Science Program will be prepared to apply mathematical tools, scientific principles and fundamental knowledge of computer science to solve problems either individually or work in multidisciplinary teams.

3. Graduates of the Computer Science Program will be aware of ethical and professional responsibilities and the need to engage in lifelong learning.

4. Graduates of the Computer Science Program will have the communication, teamwork and leadership skills necessary to function productively and professionally.

Computer Science Scholarships

In addition to College of Arts and Sciences and University scholarships, the Department of Computer Science offers three scholarships from generous donors. These department-specific scholarships can be renewed provided that the student reapplies each year, maintains a GPA of at least 3.0 each semester, and is enrolled in a minimum of twelve semester hours each term.

1. The Crawford/Lewis Endowment Scholarship in Computer Science. This scholarship awards about $700.00 each spring semester to incoming or current academically promising student who has earned at least 15 university semester credits and is in the bachelor’s program in Computer Science or Computer Information Science. Selection criteria include: SAT or ACT scores, rank in class, extracurricular activities in school, and community service.

2. The Dr. William “Bill” Nylund Scholarship in Computer Science. This scholarship awards about $450.00 each spring semester to an incoming or current academically promising student who has earned at least 30 university credit hours and is in the bachelor’s program in Computer Science or Computer Information Science.

3. The Bobby Waldron Memorial Scholarship in Computer Science. This scholarship awards about $350.00 each spring semester to incoming, or current, academically promising student who has earned at least 30 university credit hours and is in the bachelor’s program in Computer Science or Computer Information Science, and who has completed the courses: Programming Fundamentals I and Programming Fundamentals II.

In addition, the department offers two scholarships that are funded by the National Science Foundation:

1. The STAIRSTEP Program (www.lamar.edu/stairstep/): Lamar University’s STAIRSTEP program (2009-2014) was designed to increase the number of students receiving baccalaureate degrees in Science, Physics, and Mathematics, all at Lamar University. This includes women and minorities who are underrepresented in Science and Technology, as well as low income and first generation college students.

2. The ASCENT Program (galaxy4.cs.lamar.edu/~ascent/ascent/): Lamar University’s ASCENT program (2012-2017) provides scholarships (up to $10,000 per year) to eligible students who transfer to Lamar University and to the upper-level math and computer science majors at Lamar who intend to complete their bachelor’s degree. In addition to faculty mentoring, students are supported by peer mentoring, career education, and additional summer research opportunities.

Degree Plans

B.S. in Computer Science

The Computer Science program at Lamar is a broad-based program emphasizing the areas of programming languages, data structures, information systems, theory and applications of computer science, software engineering, networking, database, multimedia, game design and development, computer architecture and graphics. The program requires 47 hours in computer science, 17 hours in mathematics, 12 hours in laboratory science, 15 hours in academic or COSC/CPSC/ELEN electives, and the rest being core curriculum courses, for a bachelor’s degree. Students are required to take the ETS computer science field exam during the semester in which they are graduating with a minimum GPA of 2.25. All Computer Science courses need a grade of “C” or above with the exception of COSC1336 and COSC1337, which needs a grade of ’B’ or above. The C.S. program is ABET accredited.

The Bachelor of Science in C.S. degree will be awarded upon completion of the following requirements:

FIRST YEAR

FALL

SPRING

COSC1336 Fund I
COSC1337 Fund II

COSC1173 CS I Lab
Comm/Mod Lang

COSC1172 Think Speak Write

ENGL361 Comp
ENGL3021374 Comp II

MATH2413 Calc I
COSC2375 Disc Sci II

History I
COSC1174 CS II Lab

SECOND YEAR

FALL

SPRING

COSC2338 Fund III
COSC2372 Assembly

COSC1172 Calc II
COSC3304 Algorithms

Lab Science
Math 2328 Un Lin Algebra

Lan, skill and Culture
Lab Science
History II

THIRD YEAR

FALL

SPRING

Elective
COSC3325 Law & Ethics

CPSC3302 Networks
COSC3302 Theory

COSC3308 Prog Lan
CPSC3430 Data Base

MATH3370 Statistics
MAT33322343

Lab Science
COSC/CPSC Elective

FOURTH YEAR

FALL

SPRING

COSC4302 Operating Systems
CPSC4360 Soft Eng

Elective
COSC3410 Architecture

Creative Arts Elective
Selective

POLC3327 Gov US
Selective

Academic Elective
POL2302 Gov II

Game Development Concentration

The Game Development concentration has four 3-credit hour courses replacing the elective courses from the B.S.
in C.S. degree with: COSC1324, COSC2324, COSC4324 and COSC4325. The degree of Bachelor of Science in Computer Science with Game Development Concentration will be awarded upon completion of the following requirements:

**FIRST YEAR**

<table>
<thead>
<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>COSC1326 Fund I</td>
<td>COSC1327 Fund II</td>
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<td>ENGL1311 Comp</td>
<td>ENGL1312 Comp</td>
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<tr>
<td>COSC1173 CS I Lab</td>
<td>MATH2413 Calc I</td>
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<td>COSC1172 Think Speak Write</td>
<td>ENGL1301 Comp</td>
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<td>COSC1324 Intro Gam Dev</td>
<td>Comm. Modern Lang</td>
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<tr>
<td>ENGL1301 Comp</td>
<td>COSC1174 CS II Lab</td>
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<td>Creative Arts Elective</td>
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**SECOND YEAR**

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<tr>
<td>COSC2336 Fund III</td>
<td>COSC2372 Assembly</td>
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<td>COSC2324 Mob Gam Dev</td>
<td>COSC3304 Algorithms</td>
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<td>COSC2375 Disc Struc</td>
<td>MATH2414 Calc II</td>
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<tr>
<td>Lang, Phil and Culture</td>
<td>COSC3306 C++</td>
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<td>History I</td>
<td>History 2</td>
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**THIRD YEAR**

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<tr>
<td>MATH3328 Lin Algebra</td>
<td>COSC3365 Law &amp; Ethics</td>
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<tr>
<td>CPSC3320 Networks</td>
<td>COSC3302 Theory</td>
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<tr>
<td>COSC3306 Prog Lang</td>
<td>CPSC3308 Programming</td>
</tr>
<tr>
<td>COSC4324 Game Dvlp I</td>
<td>COSC4325 Game Dvlp II</td>
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<tr>
<td>Lab Science</td>
<td>MATH3350/3345</td>
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**FOURTH YEAR**

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<tr>
<td>COSC4302 Operating Systems</td>
<td>CPSC4340 Data Base</td>
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<tr>
<td>MATH3370 Prob &amp; Stat</td>
<td>COSC4310 Architecture</td>
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<tr>
<td>POLS5302 Gov II</td>
<td>Lab Science</td>
</tr>
<tr>
<td>Soc Science Elective</td>
<td>COSC4272 Senior Assmnt</td>
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<tr>
<td>Lab Science</td>
<td>POLS5302 Gov II</td>
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The Certificate Program in Game Design and Development is designed to prepare professionals from various disciplines to serve software companies specialized in game design and development. The certificate program has the following five 3-credit hour upper division courses (all totaling 15 hours):

1. COSC 3306 – C++/Unix
2. COSC 4324 – Game Development I
3. COSC 4325 – Game Development II
4. COSC 4319 – Computer Graphics
5. COSC 4370 – Artificial Intelligence

In addition, the department offers a Bioinformatics Concentration implemented in cooperation with the Department of Biology. The elective courses from the B.S. in C.S. degree are replaced by BIOL 1406, BIOL 1407, CHEM 1411, BIOL 3470, BIOL 4470, and BIOL 4404.

**B.S. in Computer Information Science**

The Computer and Information Sciences program emphasizes on information networking. An interplay of knowledge from areas such as distributed computing, software engineering, expert systems, information retrieval and multimedia display technology define the information networking concept. Information networks are becoming an integral and strategic component of such industries as petrochemical and transportation, space technology, education, banking and finance, medical and applications, manufacturing and retailing. Graduates of this program will possess an integrated set of skills from the fields of engineering, computer science and business.

The program requires 37 hours in computer science and computer and information sciences, 15 hours in psychology, sociology and speech, 13 hours in mathematics, 21 hours in business, 8 hours in laboratory science and 12 hours of electives, as well as the general bachelor’s degree requirements.

The Bachelor of Science degree in Computer Information Science will be awarded upon completion of the following requirements:

1. Bachelor's degree requirements.
2. Bachelor's degree requirements.
3. Bachelor's degree requirements.
4. Bachelor's degree requirements.
5. Bachelor's degree requirements.

The minimum required grade is "C" or above in the following courses:

- COSC 1336 Principles of Computer Science
- COSC 1337 Principles of Computer Science
- COSC 2336 Data Structures
- COSC 3320 Data Communications/Computer Networks
- COSC 4340 Database Design
- COSC 4302 Operating Systems
- COSC 4360 Software Engineering

The total number of credit hours for this minor is 21.

**Minor for Computer Information Science**

Required courses:

1. With a grade "B" or above:
   - COSC 1336 Programming Fundamentals I
   - COSC 1337 Programming Fundamentals II
   - COSC 2336 Data Structures
   - COSC 3320 Data Communications/Computer Networks
   - COSC 4340 Database Design
   - COSC 4302 Operating Systems
   - COSC 4360 Software Engineering

The total number of credit hours for this minor is 21.

**Minor for Web Design**

Required courses:

- COSC 1381 Game Programming
- COSC 2330 Web 2.0
- COSC 4322 Web Design
- COSC 3323 Fundamentals of Digital Media
- COSC 4322 Advanced Web Design
- COSC 4332 Programming Mobile Devices

The minimum required grade is “C” or above and the total number of credit hours for this minor is 16.

For more information, please contact:
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(409) 880-8775

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