

COMPUTER SCIENCE



MEET THE DIRECTOR

"Alexa, turn on the lights'. Congratulations, you've just implemented a script with syntax, keywords, functions and parameters. Some of the fundamental building blocks of a computer scientist.

I became interested in computers in the early '80s. The small company I worked for had just purchased a computer that took up most of a small room, and only did a few basic things. But I was intrigued and started taking classes in Fortran and Assembly, and found a new passion that would lead me into becoming a computer scientist.

So...what does a computer scientist look like? We're ordinary people doing extraordinary things. We are critical thinkers. We take things we already know and weave them in with new exciting ideas and in new ways to solve problems. We are explorers. Always pushing forward the edge of what is possible. We are dreamers. We are movers and shakers. We value the power that comes from the strength of diversity. We are lifelong learners.

Come find the extraordinary that drives you."

*— Jeannette Kartchner
Associate Undergraduate Program Director,
Computer Science*

TEACHING STYLE: Promotes self-learning and critical thinking skills through hands-on activities and content discussions. Questions are welcomed in an open-learning environment that fosters the exploration of new ideas and creative solutions.

PROFESSIONAL PAST: Designed and implemented systems for classified projects as an aerospace software engineer with McDonnell Douglas. Principal investigator for research and development of an automated military communication parsing system. 25+ years of collegiate teaching in Computer Science, Information Science and Mathematics.

ACADEMIC AREAS OF FOCUS:
Foundations, Algorithms, Programming Languages, Informatics, Software Engineering

INTERESTING FACT: My first two years of study were in Elementary Education. While sitting in the back of a 2nd grade classroom on a field trip to a local elementary school, I knew before lunch that this was not the career for me. I changed my major the next day.

Questions about the Computer Science Program?
Contact Jeannette Kartchner at USGdirector@cs.umbc.edu.



JEANNETTE KARTCHNER
Associate Undergraduate
Program Director
Computer Science

COMPUTER SCIENCE



UMBC'S B.S. IN COMPUTER SCIENCE

UMBC's B.S. in Computer Science, an ABET accredited program, introduces students to a rich and diverse discipline. Opportunities in the exciting emerging fields such as artificial intelligence, machine learning, cybersecurity, malware analysis, mobile computing, graphics, game design, quantum computing, human-computer interaction, forensic analysis, and data science are accessible in a wide range of environments. Computing jobs are in the top of the fastest growing and highest paid jobs in the country according to Bureau of Labor Statistics. UMBC computer science graduates are employed by varied businesses*: tech industry leaders, government agencies, the defense industry, and video game design companies. Other major employers include financial technology, transportation, and a variety of other startups.

Graduates of the computer science program are well prepared for advanced studies and for problem-solving across the breadth of the discipline: theory, design, architecture, development and application of computers and computer systems. Many go on to graduate school in top Computer Science and Computer Engineering departments. Career paths include software engineers, database administrators, network architects, computer programmers, web developers and information security analysts.

**Google, Amazon, Microsoft, NSA, NIST, CIA, Northrop Grumman, Lockheed Martin, Firaxis, JP Morgan, T. Rowe Price, Legg Mason, UPS, and many more ...*

Note:† Computer science students are permitted two attempts in courses required for the major or courses required to progress in the major. A course in which a student earns a grade of "W" (withdrawal) is counted as an attempt. Please note that you will not be permitted a third attempt in required courses taken at UMBC or another institution.

Note:* Courses marked with an * are strongly recommended prior to transfer. Students transferring to UMBC from Maryland Community Colleges, please consult ARTSYS (artsys.usmd.edu) for more information on course transferability. Students transferring from four-year institutions and from out-of-state community colleges, must provide course descriptions and course syllabi to determine course equivalencies. More information about the transfer credit process can be found on the Registrar's Office Transfer Credits (registrar.umbc.edu/services/transfer-credits) web page.

Note:** Prior to taking 300-level Computer Science courses at UMBC, transfer students who have completed coursework equivalent to Computer Science I, Computer Science II, and Discrete Structures at other institutions should also be familiar with the following in C++:

- Using inheritance and polymorphism to make their applications more code efficient.
- Using class templates and classes to create data structures.
- Implementing linked lists from scratch to solve a programming problem.
- Using pointers to dynamically allocate memory.

Students without this requisite knowledge are strongly encouraged to complete advanced coursework in C++ prior to entering the Computer Science program at UMBC.

REQUIRED TRANSFER COURSEWORK

- Computer Science I with a grade of B or higher †
- Computer Science II with a grade of B or higher †
- Discrete Structures with a grade of C or higher †
- Calculus and Analytic Geometry I with a grade of C or higher †
- Calculus and Analytic Geometry II with a grade of C or higher †
- C++ Course if one of the courses above not in C++**

RECOMMENDED TRANSFER COURSEWORK

- Natural science including a sequence in Biology, Chemistry, or Physics that must include at least one lab, with a grade of C or higher and no more than one prior attempt*
- Introduction to Linear Algebra with a grade of C or higher and no more than one prior attempt*
- English Composition*
- 2 Arts and Humanities courses (from at least two different disciplines)
- 3 Social Science courses (from at least two different disciplines)
- World Language 201-Level (consult advisor about expectations)

Computer Science Opportunities in Maryland, DC, and Northern Virginia

20,389

OPEN JOBS
WITHIN

50 MILES
OF
WASHINGTON D.C.

91% OF UMBC
COMP SCI GRADS
ARE EMPLOYED
WITHIN 6 MONTHS

95% OF UMBC
COMP SCI GRADS
ARE IN POSITIONS
RELATED TO THEIR
CAREER GOALS

 Accredited
Program

TOP 15 JOBS

Software Developer
Android Developer
Cyber Software Engineer
Data Analyst/Scientist
Computer Hardware Engineer
Computer Systems Analyst
Computer Network Architect
Software Development Engineer
Web Developer
DevOps Engineer
Information Security Analyst
Computer and Information
Research Scientists
Computer and Information
Systems Managers
IT Project Manager
Network Engineer

..... and
\$ 70K-75K
AVG. STARTING SALARIES



NOTABLE
COMPANIES
HIRING OUR
COMP SCI GRADUATES

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Google BOEING



NORTHROP GRUMMAN

Raytheon CISCO

Booz | Allen | Hamilton



1 COMPUTER SCIENCE PROGRAM

..... at

2 LOCATIONS

 UMBC

AT

 The Universities
AT SHADY GROVE

 UMBC

Learn More

UMBC at The Universities at Shady Grove

B.S. in Computer Science
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301-738-6081



UMBC

THE UNIVERSITIES AT SHADY GROVE