DATA AND COMPUTER SCIENCES GRADUATE CERTIFICATE

Return to the Department of Data Science

This certificate program is anticipated to launch in Fall 2027.

The Graduate Certificate in Data and Computer Sciences (DCS) provides entry-level graduate academic credentials to students who are interested in advancing their careers towards paths at the intersection of computer and data science. The certificate is designed to address the growing needs in industry for employees with a background in data analytics and computer systems who can address a wide breadth of related data and computer science tasks. Students in the certificate program will gain a deeper understanding in data analytics and computer systems that allow them to navigate today's complex data analysis tasks, including machine learning, neural networks, and network security. A Capstone course will allow them to synthesize these skillsets to demonstrate their application to complex problems.

Full-time and part-time students may enroll in the certificate program. It is anticipated that students who enroll full-time can complete the program in one year (2 semesters). Students attending part-time, maintaining a course load of two courses and the capstone in the final semester will complete the program in 1.5 years (three semesters). Students will have three years from initial enrollment to complete the certificate.

Academic credit obtained through enrollment in this certificate may be applied towards other William & Mary degrees if applicable. The Certificate in Data and Computer Science program requires a minimum of 15 credit hours of specified coursework.

Individuals seeking admission into the DCS Certificate Program must have completed a Bachelor's degree in a related field prior to enrolling as a Certificate program student. Individuals already enrolled in another William & Mary graduate program in Computer or Data Science cannot apply for admission in this Certificate program. The Certificate program is administered through the Department of Data Science at William & Mary.

The requirements and restrictions unique to the DCS Certificate are spelled out here; otherwise, DCS Certificate students have access to the services and are governed by the policies spelled out in the School of Computing, Data Sciences, and Physics Graduate Catalog.

Admission

The Graduate Certificate in Data and Computer Science has rolling admissions, with a nominal deadline of 3 months prior to the start of the semester for which one applies to enroll. Applicants are notified of a decision about one month after receipt of application.

Applicants must have completed a baccalaureate degree from an accredited institution of higher education, or international equivalent in computer, data, or computational sciences or a related field. Students from other fields who wish to be considered for admission must have completed at least one programming course or have demonstrated professional experience that can be considered as equivalent. Students lacking this background will be asked to take a remedial course.

Individuals who wish to apply to the program should submit the following materials to the DCS Certificate Coordinator:

1. Application: A completed online application for the DCS Certificate, and the corresponding nonrefundable application fee.
2. Transcripts: Official transcripts from all colleges or universities the applicant have attended, with date of actual or expected degree(s) clearly indicated. Applicants who have completed the baccalaureate degree (or its equivalent) from any institution other than a U.S. accredited institution, must submit an official copy of the transcript and a certified literal translation where needed. Translation must show courses, grades received, and degree conferral.
3. Application to Determine Physical Residency and In-State Tuition: Applicants must complete and submit the Application to Determine Physical Residency and In-State Tuition form.
4. Letters of Recommendation: A minimum of two letters of recommendation from employers or professors.
5. A Resume or CV (curriculum vitae) and Personal Statement: A resume or CV must be provided stating relevant work experience. The personal statement, not more than one single spaced page, should explain the applicant's interest in the program and how it relates to their personal or professional goals.
6. Application Fee: Applications must be accompanied by a nonrefundable application fee.

International applicants needing F-1 student visa sponsorship will not be enrolled in the program until the university has received approval from the Department of Homeland Security for inclusion of the program on its I-17.

Applicants whose first language is not English must be able to demonstrate English language proficiency through one of the following ways:

- A test of English as a Foreign Language (TOEFL) minimum composite score of 100 for the Internet Based Test (IBT) or 600 for the paper-based score; or an International English Language Testing System (IELTS) score minimum of 7 on the academic exam. In cases where a test score is within 5% of the above scores, a student may be admitted pending a successful oral interview with the DCS Certificate Coordinator.
- Successful completion of undergraduate or graduate study in a school where English is the language of instruction.
- Two years of work experience in an English-speaking workplace environment (confirmed through a letter of their employer).

Program of Study

By design, the program combines the flexibility of selecting courses from concentration areas with the coherence of listing courses that address the narrow footprints of Systems & Security, and Data Analytics. The core skillsets that the students will acquire through this coursework combine the ability to navigate through large datasets through the use of advanced data science solutions, with the principles and practices of doing so within secure systems.

The structure of the DCS graduate certificate ensures that students learn common skill sets in two major concentration areas, namely Data

Analytics (DA) and Computer Science (CS) with an initial emphasis on Systems and Security. Accordingly, we have designed the program around two concentration areas, reflecting this expertise (DA and CS), and a Capstone course that allows students to synthesize their skills in pursuit of a complex large problem.

The successful completion of the certificate requires 5 courses (15 credit hours), including at least 1 course from each of the two concentration areas (DA and CS), and the mandatory Capstone Course.

Options for the 5 required courses (15 credits) include the following:

Code	Title	Hours
Concentration 1: Computer Science		
Students must choose at least one course from the list:		
CSCI 554	Computer and Network Security	
CSCI 515	Systems Programming	
CSCI 534	Network Systems and Design	
CSCI 564	Applied Cybersecurity	
Concentration 2: Data Analytics		
Students must choose at least one course from the list:		
DATA 610	Neural Networks and Deep Learning	
DATA 611	Hardware and Software Systems for AI and Big Data	
CSCI 526	Simulation	
Capstone		
DATA 696	Data Science Capstone	
Total Credits Required		15

For students entering the program without deep knowledge in these two concentrations, CSCI 554 Computer and Network Security and DATA 611 Hardware and Software Systems for AI and Big Data are considered as the anchor courses to optimize their learning experience.

Enrollment Expectations

DCS Certificate Students are expected to enroll in at least 1 course per regular semester; otherwise, they will not be considered as making satisfactory progress in their certificate program.

Continuance Requirement

To continue as a student in the DCS certificate program, you will need to meet these minimal requirements:

Cumulative Course Credits	Minimum Cumulative G.P.A.
1-6	2.50
7-12	2.75
13-18	3.00

Certificate Requirements

- Earn a minimum of 15 credit hours of required coursework; and
- Achieve a cumulative grade point average of 3.0 on a 4.0 scale in all courses taken for certificate credit at William & Mary after admission to the certificate program.

Tuition and Fees

This DCS certificate program charges students at a tuition rate based on enrollment in this program. The Tuition and Fees do not include room & board, books, travel, and incidentals. The per-credit hour rate for the Certificate applies to all students who enroll in the Certificate program, regardless of residency status. Tuition and fees are due and payable by the due date as established by the Bursar's Office. The cost of the program will be based on the number of certificate courses taken per semester and is calculated as a fee. After the Add/Drop period tuition and fees will be non-refundable.

Financial Aid is not available for Certificate Program students.

There are a number of William & Mary services available for students enrolling in the DCS Certificate program:

- Swem Library
- Student Success
- Student Accessibility Services
- Parking & Transportation (requires a purchase of permit)
- Writing and Communication Center
- Cohen Career Center

There are William & Mary services not covered in the DCS Certificate Program fees if you are not also a full-time student (paying full tuition and fees); these include:

- Free admission to Athletic Events; you are welcome to attend but there will be a minimal cost.
- Campus Recreation Center; certificate students can purchase a membership for regular access.
- University Sponsored Events; many events are open to the public or may be available at a minimal cost.
- Student clubs and organizations.