Program Change Request

Date Submitted: 03/19/24 2:34 pm

Viewing: SC-BS-CDS : Computational and Data Sciences, BS

Last approved: 01/05/24 3:13 pm

Last edit: 03/19/24 2:34 pm

Changes proposed by: jbazaz

Catalog Pages Using this Program

Computational and Data Sciences, BS

Are you completing this form on someone else's behalf?

Yes

Requestor:

Name	Extension	Email
Estela Blaisten	1988	blaisten@gmu.edu

Effective Catalog:

In Workflow

1. **CDS Chair**
2. **SC Curriculum Committee**
3. SC Assistant Dean
4. Assoc Provost-Undergraduate
5. Registrar-Programs

Approval Path

1. 03/20/24 10:16 am Jason Kinser (jkinser): Approved for CDS Chair

History

1. Oct 23, 2017 by clmig-jwehrheim
2. Feb 3, 2019 by Estela Blaisten-Barojas (blaisten)
3. Nov 13, 2020 by Tory Sarro (vsarro)
4. Feb 24, 2022 by Tory Sarro (vsarro)
5. Apr 6, 2023 by Jennifer Bazaz Gettys (jbazaz)
6. Jan 5, 2024 by Jennifer Bazaz Gettys (jbazaz)

2024-2025

Program Level:	Undergraduate
Program Type:	Bachelor's
Degree Type:	Bachelor of Science
Title:	Computational and Data Sciences, BS
Banner Title:	Computational & Data Sci BS
Registrar/OAPI Use Only – SCHEV Status	Approved
Registrar's Office Use Only – Program Start Term	
Registrar/OAPI Use Only – SCHEV Letter	
Registrar/OAPI Use Only – SACSCOC Status	
Concentration(s):	
Registrar/IRR Use Only – Concentration CIP Code	
College/School:	College of Science
Department / Academic Unit:	Computational & Data Sciences
Jointly Owned Program?	No

Justification

What: CDS 321 Elements of Natural Language Processing and CDS 351 Elements of High Performance Computing are new courses. These courses are to be added to the Extended Core Courses list for the Computational and Data Sciences, BS.

Why: The CDS department assesses that its Computational and Data Sciences, BS will benefit from including the two new courses to the Extended Core Courses list. Students have demonstrated solid interest in the course subjects when they were offered as topic courses.

Total Credits Required:	Total credits: minimum 120

Registrar's Office Use Only - Program Code:

SC-BS-CDS

Registrar/IRR Use Only – Program CIP Code 51.2208 - Community Health and Preventive Medicine.

Admission Requirements:

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies section of this catalog.
To apply for this program, please complete the George Mason University Admissions Application.

Program-Specific Policies:

Policies

Students must fulfill all Requirements for Bachelor's Degrees, including the Mason Core.
The university's writing intensive requirement for the major will be met upon successful completion of CDS 302 Scientific Data and Databases (Mason Core).
For policies governing all undergraduate programs, see AP.5 Undergraduate Policies.

Degree Requirements:

Students should refer to the Admissions & Policies tab for specific policies related to this program.

Core Required Courses

CDS 130	Computing for Scientists (Mason Core)	3
CDS 151	Data Ethics in an Information Society	1
CDS 230	Modeling and Simulation I	3
CDS 301	Scientific Information and Data Visualization	3
CDS 302	Scientific Data and Databases (Mason Core)	13
CDS 303	Scientific Data Mining	3
Total Credits		16

1
Fulfills the writing intensive requirement.

Extended Core Courses

Select 24 credits from the following: 24

CDS 101 Introduction to Computational and Data Sciences (Mason Core)
& CDS 102 and Introduction to Computational and Data Sciences Lab (Mason Core)
CDS 201 Introduction to Computational Social Science
CDS 205 Introduction to Agent-based Modeling and Simulation
CDS 251 Introduction to Scientific Programming

CDS 292	Introduction to Social Network Analysis (Mason Core)	
CDS 321	Elements of Natural Language Processing	
CDS 351	Elements of High Performance Computing	
CDS 403	Machine Learning Applications in Science	
CDS 411	Modeling and Simulation II	
CDS 421	Computational Data Science	
CDS 461	Molecular Dynamics and Monte Carlo Simulations	
CDS 468	Image Operators and Processing	
CSI 500	Computational Science Tools	
CSI 501	Computational Science Programming	
Total Credits		24

Extended Multidisciplinary Core Courses

Mathematics		
Select 10-11 credits from the following:		10-11
MATH 113	Analytic Geometry and Calculus I (Mason Core)	
MATH 114	Analytic Geometry and Calculus II	
MATH 125	Discrete Mathematics I (Mason Core)	
MATH 203	Linear Algebra	
MATH 446	Numerical Analysis I	
or MATH 447	Numerical Analysis II	
or CDS 410	Numerical Analysis II	
Statistics		
Select 6 credits from the following:		6
STAT 250	Introductory Statistics I (Mason Core)	
STAT 350	Introductory Statistics II	
STAT 344	Probability and Statistics for Engineers and Scientists I	
STAT 346	Probability for Engineers	
Science or Engineering		
Select 6 credits from the following options:		6
Additional Mason Core: Natural Science or Mason Core: Information Technology courses.		
Any STEM course offered by the College of Science or the College of Engineering and Computing.		
Total Credits		22-23

Retroactive Requirements Updates:

Plan of Study:

Honors Information:

Program Outcomes

Additional Program Information

This information is required by the Office of Accreditation and Program Integrity.

Courses offered via distance (if applicable):

What is the primary delivery format for the program?

Hybrid

Does any portion of this program occur off-campus?

No

Are you working with a vendor / other collaborators to offer your program?

No

Related Departments

Could this program prepare students for any type of professional licensure, in Virginia or elsewhere?

No

Are you adding or removing a licensure component?

No

Additional SCHEV & SACSCOC Information

Is this change a simple retitling of an existing program, with no other changes, to any existing program content, curriculum requirements, etc?

No

Does this change represent a repackaging of content in an existing approved degree/certificate program at the same instructional level (i.e., baccalaureate, master's, or doctoral)?

No

Percentage of total credits containing new course content. ("New course content" is defined by SACSCOC as content that is not currently included in an existing approved degree/certificate program at the same instructiona level. Do not exclude gen ed credits in calculations for undergraduate programs.)

0%-24%

Does this change include the addition of a distance education or face-to-face method of delivery for this program

No

Does this change include the addition of a course/credit-based competency-based education delivery option?

No

Will any additional equipment/facilities be needed?

No

Will any additional faculty be required?

No

Will any additional financial resources be needed?

No

Additional library/learning resources needed?

No

OAPI Use Only – Determination of SACSCOC Impact

Comments or Notes

Green Leaf Program Designation

Is this a Green Leaf program? No

Does this program cover material which crosses into another department?

No

Additional Attachments Computational and Data Sciences, BS _ George Mason University.pdf

SCHEV Proposal

Executive Summary

Reviewer Comments

Additional Comments

Is this course required of all students in this degree program?

%wi_required.eschtml%

Key: 21