

Date Submitted: 11/13/18 1:32 pm

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

Last approved: 10/23/17 10:09 am

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Changes proposed by: blaisten

**Catalog Pages**

**Using this Program**

[Computational and Data Sciences, BS](#)

**In Workflow**

1. **CDS Chair**
2. SC Curriculum Committee
3. SC Associate Dean
4. SC CAT Editor
5. Assoc Provost- Undergraduate
6. Registrar-Programs

**History**

1. Oct 23, 2017 by clmig-jwehrheim

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

No

**Effective Catalog:** 2019-2020

**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**

**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**

The proposed modification of the CDS BS involves the addition of CDS 403 Machine Learning Applications to the extended core list of possible courses. CDS 403 is a new course that supplements well the data science component of the BS and will benefit substantially those students that select the course as part of the 18 required credits of extended core.

The capstone course CSI 492 Capstone in Data Science needs to be added to the General Electives of the CDS BS in the 2019-2020 catalog. There is no space in the CIM description of the program for this important addition.

**Total Credits  
Required:** Total credits: minimum 120

**Registrar's Office Use Only - Program Code:**  
SC-BS-CDS

**Registrar/IRR Use  
Only – Program CIP  
Code**

**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

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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.

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

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### Course List

Code	Title	Credits
<a href="#">CDS 130</a>	Computing for Scientists ( <a href="#">Mason Core</a> )	3
<a href="#">CDS 151</a>	Data Ethics in an Information Society ( <a href="#">Mason Core</a> )	1
<a href="#">CDS 230</a>	Modeling and Simulation I	3
<a href="#">CDS 301</a>	Scientific Information and Data Visualization	3
<a href="#">CDS 302</a>	Scientific Data and Databases 1	3
<a href="#">CDS 303</a>	Scientific Data Mining	3
Total Credits		16

1 Fulfills the writing intensive requirement.

## Extended Core Courses

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### Course List

Code	Title	Credits
Select 18 credits from the following:		18
<a href="#">CDS 101</a>	Introduction to Computational and Data Sciences ( <a href="#">Mason Core</a> )	
& <a href="#">CDS 102</a>	and Introduction to Computational and Data Sciences Lab ( <a href="#">Mason Core</a> )	
<a href="#">CDS 201</a>	Introduction to Computational Social Science	
<a href="#">CDS 205</a>	Introduction to Agent-based Modeling and Simulation	
<a href="#">CDS 251</a>	Introduction to Scientific Programming	
<a href="#">CDS 290</a>	Topics in Computational and Data Sciences	
<a href="#">CDS 292</a>	Introduction to Social Network Analysis	
<a href="#">CDS 403</a>	<b>Machine Learning Applications in Science</b>	
<a href="#">CDS 411</a>	Modeling and Simulation II	
<a href="#">CDS 486</a>	Topics in Computational and Data Sciences	

Code	Title	Credits
<a href="#"><u>CSI 500</u></a>	Computational Science Tools	
<a href="#"><u>CSI 501</u></a>	Introduction to Scientific Programming	
Total Credits		18

## Mathematics Courses

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Course List		
Code	Title	Credits
Select 10-11 credits from the following:		10-11
<a href="#"><u>MATH 113</u></a>	Analytic Geometry and Calculus I ( <a href="#"><u>Mason Core</u></a> )	
<a href="#"><u>MATH 114</u></a>	Analytic Geometry and Calculus II	
<a href="#"><u>MATH 125</u></a>	Discrete Mathematics I ( <a href="#"><u>Mason Core</u></a> )	
<a href="#"><u>MATH 203</u></a>	Linear Algebra	
<a href="#"><u>MATH 446</u></a>	Numerical Analysis I	
Total Credits		10-11

## Statistics Courses

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Course List		
Code	Title	Credits
Select 6 credits from the following:		6
<a href="#"><u>STAT 250</u></a>	Introductory Statistics I ( <a href="#"><u>Mason Core</u></a> )	
<a href="#"><u>STAT 350</u></a>	Introductory Statistics II	
<a href="#"><u>STAT 344</u></a>	Probability and Statistics for Engineers and Scientists I	
<a href="#"><u>STAT 346</u></a>	Probability for Engineers	
Total Credits		6

## Science and Engineering Courses

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Course List		
Code	Title	Credits
Select 6 credits from either one of the following:		6
<a href="#"><u>Additional Mason Core: Natural Science or Mason Core: Information Technology courses.</u></a>		
Any course offered by the College of Science or the Volgenau School of Engineering.		
Total Credits		6

**Retroactive  
Requirements  
Updates:**

Plan of Study:

Honors  
Information:

## Additional Program Information

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*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

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Are you changing the total number of credits required for this program?

No

Are you changing the delivery format in any way (e.g adding an online option)?

No

Are you adding/removing a licensure option which was approved by SCHEV?

No

Will any portion of this program be offered at an off-campus location?

No

Are you adding significant new content areas to the program?

No

Will this program change affect any specialized accreditation?

No

### Green Leaf Program Designation

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Is this a Green Leaf program? No

Does this program cover material which crosses into another department?

No

Additional Attachments

SCHEV Proposal

Executive Summary

Reviewer Comments

Additional Comments

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

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