



## Birmingham-Southern College Graduate Programs

## MASTER IN DATA SCIENCE

BSC's Master of Science in Data Science (MSDS) Program is designed with working professionals in mind. The program combines the liberal arts education and data science to provide a holistic approach to problem solving using data and preparing our graduates for distinctive careers in the field.

Our program equips students with the skills necessary to work with complex datasets, create machine learning algorithms, and present findings to stakeholders. Data science integrates mathematics, statistics, computer science, and other foundational elements in quantitative subjects.

Courses are taught in a hybrid format, combining online instruction with periodic in-person immersive weekend experiences on the Birmingham-Southern campus in Birmingham, Alabama. Students have the option to stay in on-campus housing during these in-person weekend experiences.

**12 COURSES, WHICH CAN BE COMPLETED IN TWO YEARS.**

Instruction is provided by knowledgeable professors who are enthusiastic about giving you a top-notch education and putting you in a position to succeed in the quickly expanding profession of data science. Don't miss this chance to enhance your skills and advance your career with our one-of-a-kind data science program.

### ACADEMICS

**96%**  
OF FACULTY HOLD THE  
HIGHEST DEGREE  
IN THEIR FIELD

**250+**  
COMMUNITY AND  
BUSINESS LEADERS  
MENTOR STUDENTS

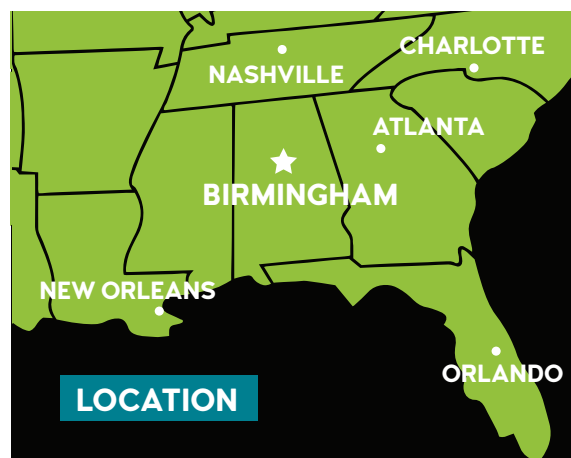
### ABOUT BSC

A small college like BSC is a special place. BSC is located within the city limits of Birmingham, Ala., a metro area of 1 million people with growing health, finance, and technology sectors. BSC boasts thousands of alumni in leadership positions in business, government, healthcare, and more right here in Birmingham—many of them eager to offer internships and mentoring to our students. And our campus safety is nationally recognized.

BSC traces its roots back to 1856. Throughout its history, BSC has committed to providing students with a high-quality, liberal arts education. The college has a strong tradition of academic excellence, and it has produced many successful graduates who have gone on to make significant contributions in their fields.

The College fosters intellectual and personal development through excellence in teaching and scholarship and by challenging students to engage their community and the greater world, to examine diverse perspectives, and to live with integrity.

Our mission is to prepare students for lives of significance. Everything the college does is designed to help our students — and everyone in the community — develop, learn, and engage in the wider world. No matter who you are or where you want to go, our faculty and staff are committed to helping you rise to your potential.



### LOCATION

- Birmingham has an international airport and is a 2.5-hour drive to Atlanta, Georgia, one of the world's largest international transit hubs.
- We're in a great spot to explore the region: Nashville is about 2.5 hours away, the Gulf Coast beaches are about 4 hours away, and New Orleans, Louisiana is about 5 hours by car or 7 hours by train.

Currently, the MSDS program is 12 courses, which can be completed in two years. All students are required to take two courses in their first term. As a part of the curriculum, you will also attend an immersion experience on BSC's campus during each term.

## COURSE WORK

All students will complete the following courses.  
CAC 510 INTRODUCTION TO DATA SCIENCE (1 UNIT)  
CAC 520 DATA SCIENCE STATISTICS (1 UNIT)  
CAC 530 INFORMATION VISUALIZATION (1 UNIT)  
CAC 540 ETHICS IN COMPUTING (1 UNIT)  
CAC 610 MACHINE LEARNING (1 UNIT)  
CAC 620 ARTIFICIAL INTELLIGENCE (1 UNIT)  
CAC 630 DATABASE DESIGN AND DEVELOPMENT (1 UNIT)  
CAC 640 BIG DATA ANALYTICS (1 UNIT)  
CAC 710 APPLIED ANALYTICS (1 UNIT)  
CAC 720 BLOCKCHAIN TECHNOLOGY (1 UNIT)  
CAC 730 NATURAL LANGUAGE PROCESSING (1 UNIT)  
CAC 740 DATA SCIENCE STUDIO (1 UNIT) – CAPSTONE

## IMMERSIVE WEEKENDS

All courses are delivered in a hybrid format, with instruction being both asynchronously online during the term. In addition, each course has one required in-person immersive weekend experience on the Birmingham-Southern campus in Birmingham, Alabama.

## ADMISSIONS OVERVIEW

BSC's Master in Data Science Program is dynamic, with a cutting-edge curriculum developed to give you the abilities and information needed to succeed in the quick-moving field of data science. We welcome applications to our program in the fall, spring, and summer.

### 3 Convenient Entry Points

Fall (August) - Fall classes start August 25, 2023  
Spring (January) - Spring classes start January 5, 2024  
Summer (April) - Summer classes start April 27th, 2024

**STUDENTS MUST APPLY, BE ADMITTED AND SUBMIT TUITION PAYMENT PRIOR TO THE FIRST DAY OF CLASS.**

### Application Requirements

- Required for Application to be reviewed:
- Completed online application including responses to short answer questions
- Copy of Transcripts from all higher education institutions attended
- Application fee
- 2 letters of recommendation (1 of which must be academic)
- Proof of English proficiency
- Resume (Optional)

### Required Prior to Enrollment:

- Official transcripts: Bachelor's Degree and beyond (within 8 weeks from the start of the first term of enrollment)
- Transcript evaluation (if applicable)

### English Proficiency Requirement:

- Duolingo (100 Minimum)
- TOEFL (81 Minimum)
- IELTS (6.5 Minimum)
- Pearson Test of English (58 Minimum)

Waived if the student has completed a US degree of any kind or at least six graduate level hours with a 3.0 GPA OR if the home school in an country where the official language of instruction was English.

Note: English proficiency tests must have been taken within the past five years (two years for Duolingo)

**For more information visit [graduate.bsc.edu](https://graduate.bsc.edu)**

## LEAD LECTURER



### CARLA REGO

Carla Rego is an Assistant Lecturer of Applied Computer Science at Birmingham-Southern College. Prior to her role at BSC, she held various positions at the University of Mississippi, most notably as a Systems Analyst and Software Developer in the University's Academic Computing Division and Graduate Instructor of Computer Science in the Department of Computer and Information Science. Dr. Rego's educational background includes a Ph.D. (ABD status) in Engineering Science from the University of Mississippi along with a Bachelor of Science in Computer Science and Education and a Master of Arts in Education Administration from Portucalense University in Portugal. She brings a wealth of expertise in machine learning, data mining, high-performance computing, and the ethical side of data science and AI to her role as an educator and researcher.

## ADDITIONAL FACULTY

### DOUGLAS A. RILEY

**Professor of Mathematics**  
B.A. (1991), DePaul University  
M.A. (1995), University of Kentucky

### SARAH RUPRIGHT

**Visiting Assistant Lecturer Lecturer of Mathematics**  
B.S.Ed. (1991), University of Tennessee, Knoxville;  
M.S.T. (2005), Florida Atlantic University.

### DAVID GRZYBOWSKI

**Visiting Assistant Professor of Mathematics**  
B.A.(2013), M.A.(2015), Case Western Reserve University,  
M.S.(2018) University of Alabama in Huntsville,  
Ph.D.(2023) Case Western Reserve University

### ANTHONY WINCHESTER

**Assistant Professor of Applied Computer Science**  
B.S. (2005), M.S. (2017), Ph.D. (2018),  
University of Alabama at Birmingham