

**NEW PROGRAM PROPOSAL**

Name of Institution

**Johnson College of Business and Economics, USC Upstate**

Name of Program (include concentrations, options, and tracks)

Master of Science in Business Analytics

Program Designation

- Associate's Degree
- Master's Degree
- Bachelor's Degree: 4 Year
- Specialist
- Bachelor's Degree: 5 Year
- Doctoral Degree: Research/Scholarship (e.g., Ph.D. and DMA)
- Doctoral Degree: Professional Practice (e.g., Ed.D., D.N.P., J.D., Pharm.D., and M.D.)

Does the program qualify for supplemental Palmetto Fellows and LIFE Scholarship awards?

- Yes
- No

Proposed Date of Implementation

Summer 2019

CIP Code

52.1302

Delivery Site(s)

The Johnson College of Business and Economics Building in Spartanburg

Delivery Mode

- Traditional/face-to-face\*  
\*select if less than 50% online
- Distance Education
  - 100% online
  - Blended (more than 50% online)
  - Other distance education

Program Contact Information (name, title, telephone number, and email address)

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Institutional Approvals and Dates of Approval

- |  |                  |
|--|------------------|
| 1. Johnson College of Business and Economics | <u>1-1-2017</u>  |
| 2. Graduate Committee                        | <u>1-23-2018</u> |
| 3. Academic Affairs Committee                | _____            |
| 4. Faculty Senate                            | _____            |
| 5. Provost/Senior Vice Chancellor for AA     | _____            |
| 6. Chancellor                                | _____            |
| 7. President                                 | _____            |
| 8. Board of Trustees                         | _____            |

## NEW PROGRAM PROPOSAL

### Background Information

State the nature and purpose of the proposed program, including target audience and centrality to institutional mission. (1500 characters)

The proposed program is designed to provide students with the deep analytical skills needed to become analytics professionals where it is predicted market demand will exceed supply by 50% by 2018 (McKenzie Report, 2011). Industry leaders confirm that there is a great need for employees who possess solid business skills combined with a good understanding of the latest sophisticated analytical tools. The program will provide students with hands-on experience and in-depth study of descriptive, predictive and prescriptive analytics. Students will learn to use leading analytics software, thereby equipping them with valuable skills employers are looking for in the business world. Moreover, students will have free access to SAS e-learning courses that will help them pursue SAS certifications. This hands-on approach is consistent with the university's mission in that it provides "extensive experiential learning opportunities." The program is designed for graduates with a bachelor's in business or a related field who would benefit by acquiring additional analytical skills. It would also serve professionals who are looking to advance in their fields. We expect that enrollment will increase from the new program, but also it should increase our undergraduate enrollment because of the desirability of the program and from students with non-business degrees. The program supports the mission of the College of Business and Economics to develop innovative programs. Moreover, the MSBA program will serve the University's mission to "provide selected master's degrees in response to regional demand."

### List the program objectives. (2000 characters)

The primary purpose of this professional degree is to equip graduates of the program with "Big Data" analytical skills that will allow them to help their respective companies sift through and analyze the large amount of data acquired and stored and uncover patterns and insights that will give their firms a valuable competitive advantage.

More specifically the main program goals are to:

1. Provide students with the knowledge of the three areas of data analytics: descriptive (data mining and data visualization), prescriptive (optimization and simulation), and predictive (forecasting and regression analysis).
2. Provide students with a practical experience with the popular analytics software tools and languages such as SAS and R.
3. Provide students with the necessary skills to design creative data analytics solutions to complex business problems.

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The student learning objectives are that upon completing the MSBA program, graduates will be able to:

1. Access, clean, and mine data.
2. Analyze, interpret, and visually display data.
3. Model, analyze, and determine an optimal solution to business problems.
4. Provide estimates about the likelihood of future values of a business metric.
5. Use popular analytics software tools and languages (e.g.: SAS and R).
6. Conduct analyses and communicate the results in a clear business language to inform business decisions.

The curriculum for the MSBA was developed using AACSB Guidelines that state that “specialized masters programs would normally include...understanding the discipline from multiple perspectives-framing problems and developing solutions in the specialized discipline-applying specialized knowledge in a global context.” Moreover AACSB Guidelines states that new business programs should have sufficient resources to satisfy accreditation standards, and should result from the strategic planning process from the college and university.

### Assessment of Need

*Provide an assessment of the need for the program for the institution, the state, the region, and beyond, if applicable. (1500 characters)*

The availability of massive amounts of data has created an urgent need for skilled business analytics professionals who can analyze such data and obtain the insight needed for informed decision making. Recent studies estimate that by 2018, there will be between 290,000 and 340,000 jobs in data analytics in the US alone (Job Trends in Indeed.com). Another study by McKinsey Global Institute revealed that by 2018 the U.S. will face a potential shortage of 140,000 to 190,000 business analytics professionals. The study also highlights a need for another 1.5 million executives, managers and analysts who understand how to exploit “big data” and utilize it in making good decisions. Manufacturing, finance and business services are playing a greater role in the Upstate region’s GDP than they did in the past. And these industries are where the demand for Business Analytics is high. Moreover, in a survey of senior students conducted in the fall 2017 semester, 23% stated that they would be likely to enroll in the MSBA program immediately after graduation and 53% stated they would be likely to enroll a few years after graduation. In the state, there are no similar programs. Clemson has a primarily online MBA with a concentration in business analytics. USC Columbia has a four-course certificate program at the graduate and undergraduate level. Furman has a three-course certificate at the undergraduate level. There is no college offering a full one-year residential program to fill this huge need. Moreover, the program is important to the institution because it will expand and strengthen the offerings of graduate programs at USC Upstate and it will help increase enrollment of students at the college while also offering an opportunity for local residents to pursue a graduate business program without having to leave the area.

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**Employment Opportunities**

Is specific employment/workforce data available to support the proposed program?

Yes

No

If yes, complete the table and the component that follows the table on page 4. If no, complete the single narrative response component on page 5 beginning with "Provide supporting evidence."

<b>Employment Opportunities</b>			
<b>Occupation</b>	<b>Expected Number of Jobs</b>	<b>Employment Projection</b>	<b>Data Source</b>
Analytics	142	Jobs that show up when searching analytics on indeed.com at the time of this writing (within 25 miles of Greer SC)	Indeed.com
Management Analyst: Average salary \$81,330	96,500 new jobs between 2016-2026	12% growth	Occupational Outlook Handbook, BLS.gov
Market Research Analyst: Average salary \$62,550	136,000 new jobs between 2016-2026	23% growth	Occupational Outlook Handbook, BLS.gov
Operations Research Analyst: Average Salary \$79,200	31,300 new jobs between 2016-2026	27% growth	Occupational Outlook Handbook, BLS.gov
Financial Analysts: Average salary \$81,760	32,100 new jobs between 2016-2026	11% growth	Occupational Outlook Handbook, BLS.gov
Logisticians: Average salary \$71,140	10,300 new jobs between 2016-2026	7% growth	Occupational Outlook Handbook, BLS.gov
Budget Analysts: Average salary \$73,840	3800 new jobs between 2016-2026	7% growth	Occupational Outlook Handbook, BLS.gov
Accountants and Auditors Average Salary \$68,150	140,000 new jobs between 2016-2026	10% growth	Occupational Outlook Handbook, BLS.gov

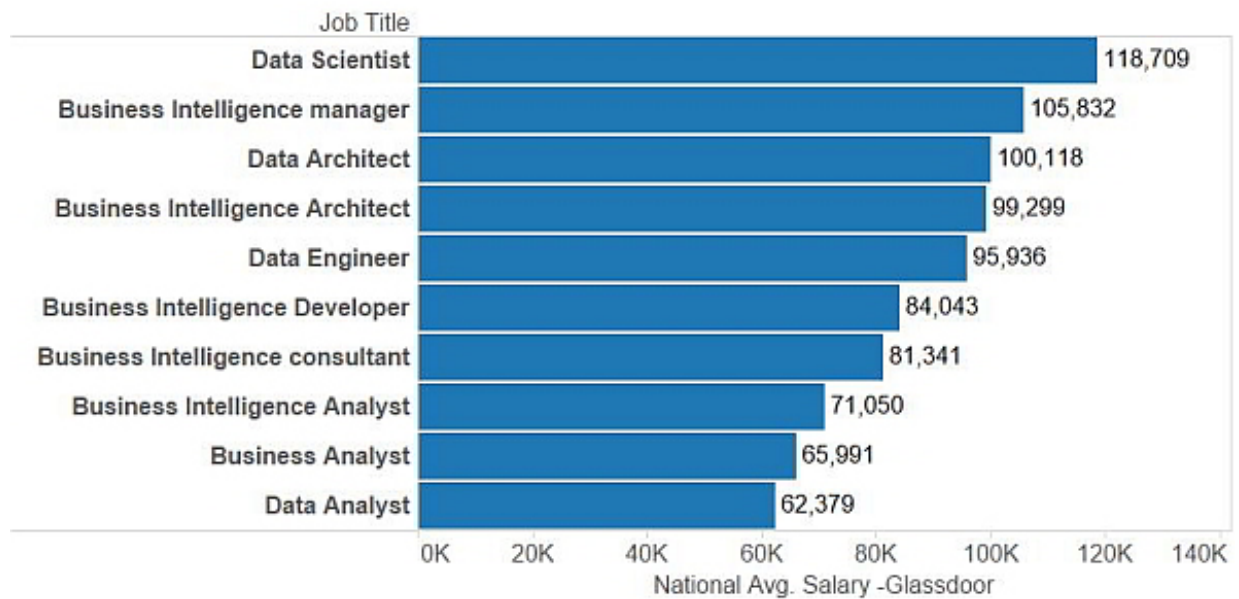
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Provide additional information regarding anticipated employment opportunities for graduates.  
(1000 characters)

The required Analytics Capstone course will pair students with local businesses such as BMW and American Credit Acceptance to define and analyze a current business problem so that an optimal business decision can be made. This capstone course thus serves as an internship-like opportunity with a local business. It is quite likely these pairings will result in employment opportunities for the students.

Source: <http://skillogic.com/blog/career-prospects-job-opportunities-business-analytics/>

**The average salaries of various Analytics job roles (in US dollars)**



**Some of the Industries, where Business Analytics is in high demand are:**

- Health Care Clinical research / Pharma companies
- Finance / Banking /Investment sector
- Human resource management / Talent acquisition
- Retail / Ecommerce
- Logistics / Supply Chain

**Few projections based on surveys conducted by various organizations:**

- Market for Analytics is forecasted to reach US \$ 17.1 Billion. (Gartner press release Feb 19,2013)
- By 2016, the demand for Analytics professionals will increase to more than 5,00,000 ( NASSCOM India)
- By 2018, the United States alone is projected to face a shortage of 190,000 people with advanced analytical skills and about 1.5 million managers and analysts with the high level knowledge on big data and analytics (McKinsey Global Institute).
- As per Gartner’s research, more than 10 million jobs in the area of big data analytics new created by 2016

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Additionally, institutions with existing programs such as Carnegie Mellon, NYU, Fordham University and Columbia, to name just a few, have reported that their graduates have gone on to work for prestigious companies such as Google, IBM, Amazon, Oracle, LinkedIn, Bank of America, Disney, Blue Cross & Blue Shield, airlines, investment brokerages, Web-based companies, the retail and food product industry and media companies. Other areas where business analytics graduates find employment include healthcare, sports, social media, environmental work, product development, advertising/marketing, supply chain and logistics.

Furthermore, we have spoken to two local officers in banks that would readily hire our graduates. When asked if he would hire someone with an analytics degree, one CEO said “In my opinion that is the most valuable finance/accounting position.” Another CFO said that someone with a good business analytics skill set would be valuable for a lot of organizations. He went on to specify these data and programming skills that are directly built into the degree program we are proposing. In the course of designing this masters, the committee met with three executives from American Credit Acceptance. Not only did they enthusiastically endorse the program, the discussed how useful our graduates could be in their corporation. They were instrumental in helping us design specific courses that will build the skill set they will be looking for in our graduates.

Provide supporting evidence of anticipated employment opportunities for graduates, including a statement that clearly articulates what the program prepares graduates to do, any documented citations that suggests a correlation between this program and future employment, and other relevant information. Please cite specific resources, as appropriate. (3000 characters)

**Note: Only complete this if the Employment Opportunities table and the section that follows the table on page 4 have not previously been completed.**

Will the proposed program impact any existing degree programs and services at the institution (e.g., course offerings or enrollment)?

Yes

No

If yes, explain. (500 characters)

- We expect that our undergraduate JCBE enrollment should increase due to students taking required pre-requisite courses.
- Electives will be accepted from other university programs such as the nursing masters' program

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**List of Similar Programs in South Carolina**

<b>Program Name</b>	<b>Institution</b>	<b>Similarities</b>	<b>Differences</b>
MBA with a concentration in Business Analytics	Clemson	Both programs provide students with business analytics knowledge however select only four courses in business analytics	This is a Master in Business Administration with a concentration in Business Analytics (four courses only cover or are directly related to Business Analytics) and as such it is not as comprehensive as our program. Students will not be exposed in depth to the field of business analytics. The Clemson program is almost entirely online, and part time over two years. The cost is \$34,900 (in state) and requires six additional hours. The Clemson program also includes more business courses that do not include an analytics component.
Business Analytics Certificate	USC-Columbia	Some of the same or similar courses are offered	The USC certificate program is much less comprehensive (only four courses), and it is in Columbia.
Data Analytics Certificate	Furman	Only a few of the same or similar courses are offered	The Furman certificate is not business based, and does not require any business knowledge. It requires six courses and does not appear to be as applied as our program.
M.S. in Information Systems Technology (IST) with Concentration in Security and Data Analytics (33 credits)	Coastal Carolina University	Only three courses in data analytics	The focus is on information systems information security, data management (Data science) but not applied business analytics. The program offers a concentration (only three courses) related to data analytics.

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**Description of the Program**

Projected Enrollment						
Year	Fall		Spring		Summer	
	Headcount	Credit Hours	Headcount	Credit Hours	Headcount	Credit Hours
2018/2019					10	60
2019/2020	10	120	10	120	15	90
2020/2021	15	180	15	180	20	120
2021/2022	20	240	20	240	25	150
2022/2023	25	300	25	300	30	180
2023/2024	30	360	30	360	35	210

We estimated the number of students based on a survey distributed in our BADM 478 capstone course. Of the students surveyed, 23% stated that they would be likely to enroll in the MSBA program immediately after graduation and 53% stated they would be likely to enroll a few years after graduation. On an annualized basis, 23% of the 140 students who graduate each year is 32, and 53% is 70, indicating that 102 JCBE students on an annual basis would be likely to enroll. Of the students that said they would enroll immediately 81% of the students had a GPA of 3.0 or above. Of the students that said they would enroll after a few years, 76% of the students had a GPA of 3.0 or above. If just half of these students that indicated they were likely to enroll actually did enroll then we will have 50 students. This number does not take in to account students from other universities. We estimated lower than 50 to be conservative.

Besides the general institutional admission requirements, are there any separate or additional admission requirements for the proposed program?

- Yes
- No

If yes, explain. (1000 characters)

Students from USC Upstate should have a GPA of 3.0 or above, or a GPA of 2.5 and an acceptable GMAT or GRE. For students from other institutions a GPA of 2.5 and an acceptable GMAT or GRE score is required. A GMAT/GRE waiver is available for students graduating from AACSB-accredited institutions with a GPA of 3.5 or higher, applicants who have completed a Master's or Doctoral degree program, and applicants who have two or more years of work experience in a related field.

Are there any special articulation agreements for the proposed program?

- Yes
- No

If yes, identify. (1000 characters)

While there are no articulation agreements at this time, the university will be seeking opportunities for collaboration. We plan to develop articulation agreements with colleges in the vicinity of USC Upstate such as Wofford College and Converse College. We would explore offering a "4+1" programs whereby students from these colleges could get early admission provided they satisfy a few requirements that will be spelled out in the articulation agreements.



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**Curriculum by Semester**

Year 1					
Summer		Fall		Spring	
Course Name	Credit Hours	Course Name	Credit Hours		Credit Hours
MSBA 700 Intro to Quantitative Analysis & Programming	3	MSBA 710 Predictive Analytics & Forecasting	3	MSBA 740 Analytical Decision Making	3
MSBA 705 Data Mining & Mgmt	3	MSBA 720 Data Visualization	3	Elective	3
		MSBA 730 Optimization	3	Elective	3
		Elective	3	MSBA 790 Analytics Capstone	3
Total Semester Hours	6	Total Semester Hours	12	Total Semester Hours	12

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**Curriculum by Category**

MSBA 700 Introduction to Quantitative Analysis and Programming (3)	Core				
MSBA 705 Data Mining and Management (3)	Core				
MSBA 710 Predictive Analytics and Forecasting (3)	Core				
MSBA 720 Data Visualization (3)	Core				
MSBA 730 Optimization (3)	Core				
MSBA 740 Analytical Decision Making (3)	Core				
MSBA 790 Analytics Capstone (3)	Core				
MSBA 745 Financial Analytics (3)	Elective				
MSBA 750 Accounting Analytics (3)	Elective				
MSBA 755 International Accounting and Consolidations (3)	Elective				
MSBA 760 Data Governance, Law and Ethics (3)	Elective				
MSBA 765 Business Process and Operations Analytics (3)	Elective				
MSBA 770 Programming for Analytics (3)	Elective				
MSBA 775 Web and Social Media Analytics (3)	Elective				
MSBA 780 Marketing Analytics (3)	Elective				
NURS 705 Advanced Digital and Information Literacy for Nurses (3)	Elective				
NURS 710 Nursing Research Methods (3)	Elective				
NURS 722 Data Analysis in the Healthcare System (2)	Elective				
NURS 723 Evidence Based Practice Project. (1)	Elective				
HIMS 750 Health Services Research Methods and Analytics (3)	Elective				

\* Add category titles to the table (e.g., major, core, general education, concentration, electives, etc.)

30 Total Credit Hours Required

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**Course Descriptions for New Courses**

<b>Course Name</b>	<b>Description</b>
MSBA 700 Introduction to Quantitative Analysis and Programming	An introduction to basic statistical estimation methods using SAS and R. Topics include general linear models, ANOVA, piecewise linear regression, logistic regression, and exploratory and confirmatory factor analyses.
MSBA 705 Data Mining and Management	Introduces students to fundamentals of data mining, data management, and data warehousing. Topics include design and querying of relational databases, design, setup and use of data warehouses, and various data and text mining methodologies.
MSBA 710 Predictive Analytics and Forecasting	Gives a contemporary and comprehensive treatment of modern time series and empirical prediction. Topics include autoregression, moving average, ARIMA processes, volatility models, cluster analysis, and structural equation modeling. Evaluate and interpret predictive models to support fact-based decision making using SAS and R. Prerequisite: MSBA 700
MSBA 720 Data Visualization	Teaches the essential and practical skills in visualization, including computer graphics, visual data representation, physical and human vision models, numerical representation of knowledge and concepts, animation techniques, pattern analysis, and computational methods. Students will learn to use various software tools including R, gg-plot2, and Tableau 8.
MSBA 730 Optimization	Emphasizes applications of optimization through cases and computer exercises to provide insights into business and economics. Areas covered include linear, network, integer, and nonlinear optimization. Students will use Excel and SAS/OPTMODEL.
MSBA 740 Analytical Decision Making	Addresses the skills and knowledge necessary to model situations where uncertainty is a major factor. Models may include decision trees, Monte Carlo simulation, discrete event simulation, and stochastic optimization, along with application for solving a wide variety of common business problems.
MSBA 790 Analytics Capstone	Students will tackle the business problem from data collection and model construction through analysis and presentation of results to recommendations for specific business decisions. Expected to provide effective solutions for the client while demonstrating their extensive analytical skills. Commercial and open source software tools will be used to build models and conduct analyses.
MSBA 745 Financial Analytics	Use of financial statement data to evaluate and predict corporate performance. Students will use extensible Business Reporting language (XBRL) to obtain corporate and industry data from the Securities Exchange Commission (SEC) for comparison and predictive purposes. Students will learn to effectively communicate findings using data visualization.
MSBA 750 Accounting Analytics	Explore the basic theory and structure underlying accounting and auditing. Use the FASB codification to research accounting issues. Apply auditing analytics to aid in sampling and risk assessment. Pre-requisites: Acct 332 and Acct 435
MSBA 755 International Accounting and Consolidations	Consolidate financial statements for both domestic and foreign subsidiaries. Account for Foreign currency transactions, hedging and derivatives. Use spreadsheet sensitivity analysis to forecast exposure to foreign currency transactions and foreign currency exchange rates. Pre-requisite: Acct 332

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MSBA 760 Law and Economic Theory, Research and Analytics	Ethical and legal theories which have led to various regulations, including antitrust, workers' compensation, social security, employment law, taxation, and environmental compliance. Integrate and develop linkages between the uses of analytics to support the overarching theories and regulations.
MSBA 765 Business Process and Operations Analytics	Introduces quantitative modeling tools and techniques used to solve problems faced in modern supply chains such as forecasting demand, determining the capacity of a manufacturing line, and optimizing the production operation.
MSBA 770 Programming for Analytics	Course covers basic principles and practical issues while effectively integrating data analytics topics using R/Python. Topics include data preparation, missing data, lists, functions, and loops.
MSBA 775 Web and Social Media Analytics	Methods and tools to collect, analyze, and report website usage data by visitors, emphasizing the nature of the visits to websites and visitors' demographics. Also, offers concepts, tools, tutorials, and cases studies that business managers need to extract and analyze the seven layers of social media data, including text, actions, networks, apps, hyperlinks, search engine, and location layers. Use of Google Analytics and SAS.
MSBA 780 Marketing Analytics	Focuses on developing analytical methods and applying statistical and mathematical tools to predict consumer behavior. Introduces formal models to analyze how and when customers make product purchase decisions, configure new products, develop market segments, forecast market share, and determine optimal pricing strategies.

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**Faculty**

<b>Faculty and Administrative Personnel</b>				
<b>Rank</b>	<b>Full-or Part-time</b>	<b>Courses Taught or To be Taught, Including Term, Course Number &amp; Title, Credit Hours</b>	<b>Academic Degrees and Coursework Relevant to Courses Taught, Including Institution and Major</b>	<b>Other Qualifications and Comments (i.e., explain role and/or changes in assignment)</b>
Dr. Frank Rudisill, Professor	FT	MSBA 700 Introduction to Quantitative Analysis and Programming (Summer, 3); MSBA 710 Predictive Analytics and Forecasting (Fall, 3); MSBA 790 Analytics Capstone (Spring, 3)	PhD in Management Science from Clemson University. Relevant Coursework: Applied Stat Decision Theory, Stochastic Processes, Stochastic Models, Management Systems Analysis	Operations Research Manager for Milliken and Company. Spend 15+ years as Statistical Quality Consultant.
Dr. Elizabeth Cole, Associate Professor	FT	MSBA 745 Financial Analytics (Spring, 3); MSBA 750 Accounting Analytics (Spring, 3); MSBA 755 International Accounting and Consolidations (Summer, 3)	MACCT, Virginia Tech, concentration Auditing. PhD in Business Administration Kent State University, Major Accounting, Minor Statistics	Experience in accounting and internal auditing. Significant and current academic research conducted in Accounting.
Dr. Mike Dinger, Associate Professor	FT	MSBA 720 Data Visualization (Fall, 3); MSBA 790 Analytics Capstone (Spring 3)	PhD in Management from Clemson	Currently teaches undergraduate capstone, statistics and management courses
Dr. Jim O'Connor, Assistant Professor	FT	MSBA 730 Optimization (Fall, 3); MSBA 740 Analytical Decision Making (Spring, 3); MSBA 765 Business Process and Operations Analytics (Summer, 3) MSBA 790 Analytics Capstone (Spring 3)	EDM, Georgia State; MS Management, Georgia Tech, Concentration in management of technology-driven companies; MS Statistics, Georgia Tech, Concentration in design of experiments; BS Chemical Engineering, Georgia Tech.	Experience in analytics applied to research, and to manufacturing and supply chains as a consulting statistician and operations manager.
Dr. Kyle Turner, Assistant Professor	FT	MSBA 765 Business Process and Operations Analytics (Summer, 3); MSBA 790 Analytics Capstone (Summer, 3)	Ph.D. in Organizations and Strategy at University of Tennessee.	Degree conferred within the past 5 years with up to date knowledge of Structural Equation Modeling, multivariate methods, and the application of these tools to management research. Research Methods minor specialization in the Ph.D. program

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Dr. Julie Wade, Assistant Professor	FT	MSBA 775 Web and Social Media Analytics (Spring, 3)	PhD in Management from Clemson concentration in information systems; MS in Marketing from Clemson	Research social media and am well-versed in practical and academic literature on the subject. Quite a few of my papers deal with relevant social media topics such as hiring policies, virtual brand communities, social media platform differences, etc. For two years at Clemson, I also helped run our Social Media Listening Center. The center involved the use of radian6, a social media analytics tool.
Dr. Candy Bianco, Assistant Professor	FT	MSBA 745 Financial Analytics (Spring, 3); MSBA 750 Accounting Analytics (Spring, 3)	MBA finance from University of Rhode Island; PhD in finance from University of Connecticut	CPA in Massachusetts and South Carolina; Taught in undergraduate programs in both accounting and finance for almost 20 years at 3 colleges (15 at Bentley University, 3 years at Roger Williams University and 1 year at Gordon College); CFO and Controller at health care companies, treasurer at nonprofit, auditor and consultant at PricewaterhouseCoopers
Dr. Ayse Erdogan, Assistant Professor	FT	MSBA 730 Optimization (Fall, 3)	Ph.D. and M.A. in Economics (University of Minnesota); M.A. in Economics (Bogazici University). a focus on static/dynamic optimization techniques– at the University of Minnesota. Taught Economic Forecasting at Rochester Institute of Technology as an Assistant Professor.	Worked as a Financial Controller in banking sector where MS Excel and its advanced applications were extensively used. Also has proficiency in MATLAB, E-Views, Minitab, and Stata.
Dr. Angie Starrett, Instructor	FT	MSBA 700 Introduction to Quantitative Analysis and Programming (Summer, 3); MSBA 710 Predictive Analytics and Forecasting (Fall, 3); MSBA 770 Programming for Analytics (Spring, 3)	PhD in Educational Research from USC; Masters in Mathematical Sciences from Clemson	Worked as an interest rate risk analyst in banking prior to joining USC Upstate. Has taught many undergraduate mathematics and statistics courses at USC Upstate
Gerald Smalls, JD, Instructor	FT	MSBA 760 Data Governance, Law and Ethics (Spring, 3)	LL.M. in Taxation from Georgetown; J.D. from Howard; MBA from Clark Atlanta	Over 10 years of corporate experience as a chief of staff and senior financial analyst.
Computer Science professor	FT/PT	MSBA 705 Data Mining and Mgmt (Fall, 3)	PhD in Computer Science	

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Dr. Rosalind Paige	FT	MSBA 780 Marketing Analytics	Ph.D in Textiles and Clothing Marketing Iowa State University	19 years teaching consumer behavior and marketing research in which analytical methods are incorporated in course content. Faculty advisor for 3 years for both doctoral and masters students at the University of Tennessee. Active in real world social media analytics.
Analytics Assistant Professor*	FT	MSBA 700 Intro to Quantitative Analysis and Programming (Summer, 3); MSBA 710 Predictive Analytics and Forecasting (Fall, 3); MSBA 770 Programming for Analytics (Spring, 3); MSBA 705 Data Mining and Management (Fall, 3); MSBA 765 Business Process and Operations Analytics (Summer, 3); MSBA 790 Analytics Capstone (Summer, 3)	PhD in Analytics/MIS	

Note: Individuals should be listed with program supervisor positions listed first. Identify any new faculty with an asterisk next to their rank.

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Total FTE needed to support the proposed program (i.e., the total FTE devoted just to the new program for all faculty, staff, and program administrators):

Faculty	Staff	Administration
2.0 FTE *		0.25 FTE

\*two new scholarly academics.

**Faculty/Administrative Personnel Changes**

Provide a brief explanation of any additional institutional changes in faculty and/or administrative assignment that may result from implementing the proposed program. (1000 characters)

Two new faculty members are required to teach the new courses, one hired for the first year and one hired for the second. One existing faculty member will be named Graduate Coordinator. He or she will receive a course release for this responsibility or 25% of her/his time to administer the program. In addition, 25% of the JCBE administrative assistant effort will be assigned to this program's administration. The 0.25FTE administration will be reallocated from the current JCBE Administrative staff.

**Library and Learning Resources**

Identify current library/learning collections, resources, and services necessary to support the proposed program and any additional library resources needed. (1000 characters)

Current library/learning collections, resources and services that support existing business programs will be sufficient. A few additional library holdings (periodicals/journals) will be needed to support the new program.

**Student Support Services**

Identify academic support services needed for the proposed program and any additional estimated costs associated with these services. (500 characters)

Once accepted into the program, each MSBA student will be assigned a faculty advisor. The student and advisor will meet regularly from the beginning of the program until graduation. The advisor will work with students on academic issues and direct them to other resources as needed. Students in this program will have access to all support services available to students of USC Upstate. No additional special student support services are needed to support this new program. The graduate studies office and financial aid office will assist students with the enrollment process and financial aid information. The JCBE student services and the program coordinator will manage matriculation, course registration, and graduation coordination. The Johnson College of Business and Economics will manage career advising in collaboration with the Career Center.



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### Physical Resources

Identify any new instructional equipment needed for the proposed program. (500 characters)

Technology:

The existing technology in the classrooms and the computer lab will be adequate for the program.

Library:

A few additional library holdings (periodicals/journals) will be added. MSBA students will have access to all materials in electronic formats--e-books, e-journals, online article indexes, reference and other e-content databases, and streaming video-- belonging or licensed to USC Upstate library and accessible through the Internet. Students will also be able to access licensed subscriptions.

Will any extraordinary physical facilities be needed to support the proposed program?

Yes

No

Identify the physical facilities needed to support the program and the institution's plan for meeting the requirements, including new facilities or modifications to existing facilities. (1000 characters)

No new facilities are required for this program.

Office Space:

There is no need for new office space. The new faculty member will use an available office.

Classrooms:

The classrooms at the JCBE building and the computer lab will be sufficient classroom space for the program. Also, some of the courses will be delivered online.

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**Financial Support**

<b>Estimated New Costs by Year</b>						
<b>Category</b>	<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>4<sup>th</sup></b>	<b>5<sup>th</sup></b>	<b>Total</b>
Program Administration <sup>a</sup>	\$43,333	\$43,333	\$43,333	\$43,333	\$43,333	\$216,667
Faculty and Staff Salaries <sup>b</sup>	\$156,000	\$286,000	\$286,000	\$286,000	\$286,000	\$1,300,000
Graduate Assistants	\$15,000	\$15,000	\$30,000	\$30,000	\$45,000	\$135,000
Equipment						
Facilities						
Supplies and Materials						
Library Resources	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$5,000
Other*						
<b>Total</b>	<b>\$215,333</b>	<b>\$345,333</b>	<b>\$360,333</b>	<b>\$360,333</b>	<b>\$375,333</b>	<b>\$1,656,667</b>
<b>Sources of Financing</b>						
<b>Category</b>	<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>4<sup>th</sup></b>	<b>5<sup>th</sup></b>	<b>Total</b>
Tuition Funding	\$165,675	\$255,968	\$351,529	\$452,594	\$559,406	\$1,785,172
Program-Specific Fees <sup>c</sup>	\$9,000	\$13,500	\$18,000	\$22,500	\$27,000	\$90,000
State Funding (i.e., Special State Appropriation)*						
Reallocation of Existing Funds*						
Federal Funding*						
Other Funding*						
<b>Total</b>	<b>\$174,675</b>	<b>\$269,468</b>	<b>\$369,529</b>	<b>\$475,094</b>	<b>\$586,406</b>	<b>\$1,875,172</b>
<b>Net Total</b> (i.e., Sources of Financing Minus Estimated New Costs)	<b>\$(40,658)</b>	<b>\$(75,865)</b>	<b>\$9,196</b>	<b>\$114,761</b>	<b>\$211,073</b>	<b>\$218,505</b>

- a. Cost of a course release for a graduate certified faculty member.
- b. Estimated cost of two new scholarly academics, one hired for the first year and one hired for the second.
- c. Program specific fees of \$30 per credit hour

\*Provide an explanation for these costs and sources of financing in the budget justification.

## NEW PROGRAM PROPOSAL

### Budget Justification

Provide a brief explanation for the other new costs and any special sources of financing (state funding, reallocation of existing funds, federal funding, or other funding) identified in the Financial Support table. (1000 characters)

**Note: Institutions need to complete this budget justification *only* if any other new costs, state funding, reallocation of existing funds, federal funding, or other funding are included in the Financial Support table.**

The graduate program fees would allow us to pay for databases currently paid for through undergraduate tuition that would be more appropriately funded by the graduate program.

### Evaluation and Assessment

**Programmatic Assessment:** Provide an outline of how the proposed program will be evaluated, including any plans to track employment. Identify assessment tools or software used in the evaluation. Explain how assessment data will be used. (3000 characters)

Assessment of the Master of Science in Business Analytics learning goals and student learning outcomes is a yearly process that is ongoing throughout the curriculum. The assessment results will be analyzed by the faculty and the MSBA program director and appropriate actions will be taken to improve the curriculum and close the loop. In addition to curriculum and student learning assessment, we plan to evaluate students' perception of the quality of the program. A student satisfaction survey will be regularly administered. We will periodically measure the success of the MSBA program to ensure continuous quality improvement and that the program meets the changing demands. And to that end, we plan to survey our alumni and employers to obtain feedback about the program and collect employment data.

### Program Mission

The MSBA program will provide students with advanced analytical skills and knowledge, equipping them to apply analytics techniques to business problems involving high volumes of structured and unstructured data. Business analytics professionals work in all business domains assisting companies by acquiring, managing, and analyzing data, uncovering patterns and communicating insights that give their firms a valuable competitive advantage.

### Students Learning Objectives

After completing the MSBA program, graduates will be able to:

1. Access, clean, and mine data.
2. Analyze, interpret, and visually display data.
3. Model, analyze, and determine an optimal solution to business problems.
4. Provide estimates about the likelihood of future values of a business metric.
5. Use popular analytics software tools and languages (e.g.: SAS and R).
6. Conduct analyses and communicate the results in a clear business language to inform business decisions.

**NEW PROGRAM PROPOSAL**

**NEW PROGRAM PROPOSAL**

The student learning assessment will be done yearly and a combination of the following measures will be used to assess students learning outcomes: rubrics, exams, course projects, case studies and presentations.

**Program Assessment**

<b>Goals</b>	<b>Student Learning Outcomes</b>	<b>Methods of Assessment</b>
1. Provide students with the knowledge of the three areas of data analytics: descriptive (data mining and data visualization), prescriptive (optimization and simulation), and predictive (forecasting and regression analysis).	1.1 Access, clean, and mine data.	1.1 Course-imbedded project and case studies, exams and presentations in MSBA 705.
	1.2 Analyze, interpret, and visually display data.	1.2 Course-imbedded project and case studies, exams and presentations in MSBA 720.
	1.3 Model, analyze, and determine an optimal solution to business problems.	1.3 Course-imbedded project and case studies, exams and presentations in MSBA 730.
	1.4 Provide estimates about the likelihood of future values of a business metric.	1.4 Course-imbedded project and case studies, exams and presentations in MSBA 710.
2. Provide students with a practical experience with the popular analytics software tools and languages such as SAS and R.	2.1 Use popular analytics software tools and languages (e.g.: SAS and R).	2.1 Course-imbedded project and case studies, exams and presentations in MSBA 700.
3. Provide students with the necessary skills to design creative data analytics solutions to complex business problems.	3.1 Conduct analyses and communicate the results in a clear business language to inform business decisions.	3.1 Course-imbedded project and case studies, exams and presentations in MSBA 790.

**NEW PROGRAM PROPOSAL**

Student, alumni and employers' satisfaction surveys will be administered as follows:

	<b>Criteria used for assessment</b>	<b>Measures used for evaluating criteria</b>	<b>Frequency of assessment</b>
<b>Curriculum Quality</b>	1. Student satisfaction with instruction	1. Student Opinion Polls (SOPs)	1. Every semester
	2. Student satisfaction with rigor and quality of course content		
	3. Student satisfaction with content	2. Alumni survey	2. Periodic
<b>Advising and Career Management</b>	1. Student satisfaction with advising	1. Exit interview	1. At graduation
	2. Student satisfaction with career services and job placement	2. Alumni survey	2. Periodic
	3. Customer satisfaction with graduates	3. Employers/recruiters	3. Periodic

**Job placement:** A database will be developed and managed by the program director to track employment of our graduates. Exit interviews as well as alumni surveys will be used to collect and monitor employment data. We will analyze the data on the employment of the MSBA graduates immediately after graduation and many years after graduation. We will gather information about the position title, rank, size of the organization, and primary responsibilities.

**NEW PROGRAM PROPOSAL**

Will the proposed program seek program-specific accreditation?

- Yes  
No

If yes, provide the institution's plans to seek accreditation, including the expected timeline for accreditation. (500 characters)

Will the proposed program lead to licensure or certification?

- Yes  
No

If yes, explain how the program will prepare students for licensure or certification. (500 characters)

While pursuing the M.S. in Business Analytics, students will have the option to become SAS certified. SAS skills will be covered in the coursework sufficient to prepare students to pass SAS Professional-level credentialing exams.

**Teacher or School Professional Preparation Programs**

Is the proposed program a teacher or school professional preparation program?

- Yes  
No

If yes, complete the following components.

Area of Certification

Please attach a document addressing the South Carolina Department of Education Requirements and SPA or Other National Specialized and/or Professional Association Standards.

February 12, 2018

Dr. Mohamed Djerdjouri  
Dean  
George Dean Johnson, Jr. College of Business and Economics  
800 University Way  
Spartanburg, SC 29303

**VIA E-MAIL to [mdjerdjo@uscupstate.edu](mailto:mdjerdjo@uscupstate.edu)**

Dear Dr. Djerdjouri,

I am writing on behalf of American Credit Acceptance, LLC (“ACA”) to express our support for the College’s proposed Master of Science (M. Sc.) in Business Analytics. We hope that the proposed program is successful as it seeks approval from the South Carolina Commission on Higher Education.

ACA is headquartered in Spartanburg, SC and employs over 700 people. Our Business Analytics Department employs personnel in positions such as Data Analyst, Risk Analyst and Strategy Analyst. ACA has a continuing need for qualified employees trained in this skill set.

Sincerely,



Anu Agarwal  
President, Operations and Innovation  
American Credit Acceptance, LLC  
961 E. Main St.  
Spartanburg, SC 29302  
[Anu.Agarwal@acacceptance.com](mailto:Anu.Agarwal@acacceptance.com)