

**TITLE: GRADUATE CERTIFICATE IN BUSINESS ANALYTICS**

**ORIGINATING DEPARTMENTS:** Department of Marketing and Department of Business Information Systems and Operations Management

**ADMINISTERING UNIT:** (if different): Belk College Office of Graduate Programs

**First Term Certificate is to be offered:** Fall 2017

**Primary Contact Name:** Dr. Jennifer Troyer, Associate Dean for Research and Graduate Programs

**Graduate Program Director Name (if different):** N/A

**A: Summary**

The Graduate Certificate in Business Analytics program provides students with the knowledge and application skills to use analytics in business strategy and decisions. The certificate program requires completion of 12 semester hours (four courses) of existing Belk College of Business 6000-level courses in business analytics.

**B: Catalog Copy**

The Business Analytics Certificate provides students with a foundation in business analytics. The aim of the certificate is to satisfy the large and rapidly increasing demand in the marketplace for data-driven decision making in business. Students will learn how to understand and apply data analytics techniques in business decisions. Demand for these skills has been driven predominantly by exponential growth in the generation of unstructured data by consumers -- often referred to as the "Big Data Revolution." Students considering graduate study in business analytics will learn how to turn abstract data into important information that can be used in business decisions. The certificate program requires completion of 12 graduate credit hours of coursework in business analytics (4 courses).

**1. Admission Requirements**

In addition to the general requirements for admission to the Graduate School, the following are required for the Graduate Certificate in Business Analytics:

- A bachelor's degree, or its equivalent, from a regionally accredited college or university.
- GPA of at least 2.75 (based on a 4.0 scale) on all previous work completed beyond high school (secondary school).
- An online application through the Graduate School's application system.
- A statement of purpose.
- Unofficial transcripts of all college course work attempted.
- Official and satisfactory scores on the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS), if English is not the applicant's native language and he or she has not earned a post-secondary degree from a U.S. institution.

## 2. Program Description

The Graduate Certificate in Business Analytics requires completion of 12 semester hours of 6000-level courses in business analytics. Transfer credits are not accepted into the Graduate Certificate in Business Analytics program. Students must earn a grade of B or above in all four courses that make up the certificate program.

This 12-credit certificate program consists of:

Core Requirement (6 credit hours):

- MBAD 6201 Business Intelligence and Analytics (3)
- MBAD 6276 Consumer Analytics (3)

Plus 2 of the following elective courses (6 credit hours):

- MBAD 6122 Decision Modeling and Analysis via Spreadsheets (3)
- MBAD 6207 Business Project Management (3)
- MBAD 6211 Advanced Business Analytics (3)
- MBAD 6212 Enterprise Systems (3)
- MBAD 6213 Applied Healthcare Business Analytics (3)
- MBAD 6272 Marketing Analysis and Decision Making (3)
- MBAD 6277 Social Media Marketing and Analytics (3)
- MBAD 6283 Mobile Marketing and Analytics (3)
- MBAD 6278 Innovation Analytics (3)
- MBAD 7090 Big Data Analytics for Competitive Advantage (3)

### 3. Will the certificate program be delivered on campus, 100% online program, or a combination? Describe any distance education components in detail.

The Graduate Certificate in Business Analytics will be delivered on campus. The existing facilities in the Belk College of Business will be adequate to support the certificate program. The certificate program will utilize existing classrooms at the UNC Charlotte Center City Building.

## C: Justification

### 1. Need for program

- The Graduate Certificate in Business Analytics would allow students to gain a strong foundation in Business Analytics, a skill set that is increasingly in demand. An increasingly hyper-competitive marketplace with a rapid pace of change has driven this demand. The Belk College of Business has moved rapidly to satisfy the business community's demand for talent with the ability to use Big Data analytics in business decision-making. Having an advanced background in analytics will enable students to be more competitive candidates for a variety of positions and better-prepared employees. Additionally, students

**Table 1. Belk College of Business Graduate Tuition**

	0 - 2 Credit Hour	3 - 5 Credit Hour	6 - 8 Credit Hour	9+ Credit Hour
Tuition NC Resident	\$516.00	\$1,032.00	\$1,548.00	\$2,064.00
Tuition Non-Resident	\$2,100.00	\$4,199.75	\$6,299.75	\$8,399.50
Tuition Increment	\$750.00	\$1,500.00	\$2,250.00	\$3,000.00

**D: Student Learning Outcomes (provide SLOs in template format)**

The Student Learning Outcomes assessment plan is included in Appendix B.

**E: For an educational program to be eligible for Title IV federal financial aid (unsubsidized student loans), it must lead to a degree, prepare students for further study, or lead to gainful employment. Because certificate programs do not necessarily lead to a degree, the U.S. Department of Education requires institutions to disclose certain information about the programs. If the proposed certificate is approved, it will be subject to annual Gainful Employment approval, disclosure, and most likely reporting requirements as established by the U.S. Department of Education.**

Yes, we accept these requirements.

**F: How will the certificate be evaluated?**

Evaluation of the certificate program will include reviewing metrics, such as the number of students enrolled in the program and the number of students completing the certificate, on an annual basis. The Student Learning Outcomes assessment report will also be used to evaluate whether students are learning that which is intended.

**G: Letters of support or consultation as required. All units sponsoring and participating in the certificate should approve the proposal and provide letters of support.**

The proposed Graduate Certificate in Business Analytics will have two sponsoring and participating departments: the Departments of Marketing and Business Information Systems and Operations Management. Faculty members from the Departments of Marketing and Business Information Systems and Operations Management created this certificate. Discussions were favorable for introduction of this certificate. A copy of the Graduate Certificate in Business Analytics proposal was shared with Dr. Sunil Erevelles, Chair of the Department of Marketing and Dr. Antonis Stylianou, Chair of the Department of Business Information Systems and Operations Management. In addition, Dr. Mirsad Hadzikadic, Executive Director of the Data Science Initiative was also consulted. Their letters of support are included in Appendix A.

**H: Additional requested information**

The Graduate Certificate in Business Analytics requires completion of 12 semester hours (four courses) of existing Belk College of Business 6000-level courses in business analytics. The certificate program will generally take two to three semesters to complete. If a student is

considering graduate study in business analytics would have the opportunity to explore material prior to formally committing to a full graduate degree program.

**2. Impact statement**

**a. What group of students would be served by this certificate?**

The Graduate Certificate in Business Analytics will serve post- baccalaureate and post-graduate students interested in pursuing their education in the area of Business Analytics. Students interested in only earning the certificate, as well as students who intend to enroll in the Masters of Business Administration program may pursue the certificate program.

**b. What impact will this certificate have on existing curricula?**

Students completing the Graduate Certificate in Business Analytics will take 12 semester hours of four existing Belk College of Business graduate business analytics courses. A positive impact on the graduate business analytics courses is expected. The certificate may encourage students to join our graduate degree courses. The current graduate business analytics courses have the capacity to absorb these students.

**c. What is the projected annual enrollment for the first five years? Include "new" student enrollment counts and indicate if the program will primarily be pursued by students who are concurrently enrolled in a master's program or only enrolled in the certificate program.**

It is anticipated that the Graduate Certificate in Business Analytics will enroll 25 students annually. Students interested in only earning the certificate as well as students who intend to enroll in the Master of Business Administration program may pursue the certificate program.

**d. Are any new resources required to implement the certificate? If "yes" what are they and how will these needs be met?**

No new resources are required to implement the Graduate Certificate in Business Analytics, as all courses are existing courses.

**3. Will a tuition increment be charged for this certificate? If "yes", how much?**

The Belk College of Business has a graduate student tuition increment in place for all BCOB graduate certificates and degree programs as shown in the tuition and fee schedule below. The same structure will be in effect for the Graduate Certificate in Business Analytics. The tuition increment for a full-time graduate student is \$3000.00 per semester and is incremented for part-time students based on the number of credit hours as shown in Table 1 below.

interested in pursuing a Master of Business Administration, all certificate courses will transfer to the degree program.

Prerequisite requirements for each of the certificate courses is listed below:

- MBAD 6201. Business Intelligence and Analysis. (3) Prerequisites: Permission from the MBA Director.
- MBAD 6122. Decision Making and Analysis via Spreadsheets. (3) Prerequisites: Permission from the MBA Director.
- MBAD 6272. Marketing Analysis and Decision Making (3) Prerequisites: Permission from the MBA Director
- MBAD 6276. Consumer Analytics. (3) Prerequisites: Permission from the MBA Director.
- MBAD 6277. Social Media Marketing and Analytics. (3) Prerequisites: Permission from the MBA Director.
- MBAD 6207. Business Project Management. (3) Prerequisites: Permission from the MBA Director.
- MBAD 6278. Innovation Analytics. (3) Prerequisites: Permission from the MBA Director.
- MBAD 6211 Advanced Business Analytics. (3) Prerequisites: MBAD 6201 or ITCS 6162, or permission of department.
- MBAD 6212 Enterprise Systems. (3) Prerequisites: Permission from the MBA Director.
- MBAD 6213 Applied Healthcare Business Analytics. (3) Prerequisites: Graduate standing, Applied Statistics and Microsoft Excel proficiency
- MBAD 6283. Mobile Marketing and Analytics (3) Prerequisites: Permission from the MBA Director
- MBAD 7090 Big Data Analytics for Competitive Advantage. (3) Prerequisites: Permission from the MBA Director

### Signatures

1. Department Chair:

a. Department of Marketing

[Sunil Erevelles]

b. Department of Business Information Systems and Operations Management

[Antonis Stylianou]

2. Graduate Program Director: [Jennifer Troyer]

3. College Graduate Curriculum Committee Chair: [Chandra Subramaniam]

4. College Dean: [Steve Ott]

5. Graduate Council Chair: [Rob Roy McGregor]

APPENDIX A

Letters of Support



9201 University City Boulevard, Charlotte, NC 28223-0001

May 3, 2016

To: Jennifer Troyer, Associate Dean for Research and Graduate Programs, Belk College of Business  
From: Mirsad Hadzikadic, Executive Director, Data Science Initiative  
RE: Graduate Certificate in Business Analytics

I support and endorse the proposed Graduate Certificate in Business Analytics. I am in agreement with the structure as proposed. This program will further enhance the Data Science Initiative's programmatic offerings.

Sincerely,

A handwritten signature in black ink, appearing to read "Mirsad Hadzikadic", written over a horizontal line.

Mirsad Hadzikadic, Ph.D.  
Professor, Department of Software and Information Systems  
Executive Director, Data Science Initiative  
Director, Complex Systems Institute  
Director, Data Science and Business Analytics Professional Science Master's  
College of Computing and Informatics/The Graduate School  
343-A Woodward Hall  
UNC Charlotte  
Charlotte, NC 28223  
704-687-8643



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9201 University City Blvd, Charlotte, NC 28223-0001  
t/ 704.687.7663 f/ 704.687.6463 www.belkcollege.uncc.edu

March 15, 2016

To: Jennifer Troyer, Associate Dean for Research & Graduate Programs.

From: Sunil Erevelles, Chair, Department of Marketing.

Sub: Graduate Certificate in Business Analytics

I support the proposal to establish a new Graduate Certificate program in Business Analytics. We are pleased to have the opportunity to collaborate with the Department of Business Information Systems and Operations Management to offer courses in this certificate program.

Sincerely,



Sunil Erevelles, Ph.D.,  
Chair, Department of Marketing



UNC CHARLOTTE  
BELK COLLEGE *of* BUSINESS

Department of Business Information Systems and Operations Management

919 University City Blvd., Charlotte, NC 28226-5000  
P: 704.875.7753 F: 704.875.6790 www.bisom.unc.edu

**March 15, 2016**

**To: Jennifer Troyer, Associate Dean for Research and Graduate Programs**  
**From: Antonis Stylianou, Chair, BISOM Department**  
**Subject: Graduate Certificate in Business Analytics**

The BISOM Department supports the proposal to establish a new Graduate Certificate in Business Analytics. We are pleased to have the opportunity to collaborate with the Marketing Department to offer courses in this certificate program.

*The UNIVERSITY of NORTH CAROLINA at CHARLOTTE*





## Consultation on Library Holdings

**To:** Dr. Sunil Erevelles  
**From:** Nicole Spoor  
**Date:** March 11, 2016  
**Subject:** Establishment of a Graduate Certificate in Business Analytics

### Summary of Librarian's Evaluation of Holdings:

**Please Check One:**

- 1. Holdings are superior
- 2. Holdings are adequate
- 3. Holdings are adequate only if dept. purchases additional items
- 4. Holdings are inadequate

**Comments:**

The following table shows the print source holdings that are relevant to this certificate. After performing multiple searches of the catalog, it is found that there are adequate relevant resources. Individual books not owned by the library may be requested through the library's interlibrary loan service.

Catalog Searches Performed	Total Results	Results Less Than 3 Years Old
Business AND analytics	185	108
Marketing Analytics	591	138
Project Management	1282	197

The following is a list of selected databases that may be relevant to management to which Atkins Library provides access: ABI/Inform, Books 24x& via Skillport, Business Source Complete, JSTOR, Lexis Nexis Academic, Mintel Academic, ScienceDirect, and SimplyMap

**Conclusion:**

After a thorough evaluation of Atkins Library resources with regards to journals, databases, and circulating books that are relevant to the establishment of a Graduate Certificate in Business Analytics, it is found that the library's resources are sufficient to support this certificate. It is suggested that the participating academic departments continue ordering new resources as they are published.

**Evaluator's Signature:** Nicole Spoor, Business Librarian, Atkins Library

## APPENDIX B



### Student Learning Outcomes Assessment Plan

**College:** Belk College of Business

**Departments:** Marketing and Business Information Systems and Operations Management

**Degree Program:** Graduate Certificate in Business Analytics

#### Student Learning Outcome 1

(knowledge, skill or ability to be assessed)

Students will demonstrate knowledge of data management from technological and managerial perspectives.

**Effectiveness Measure:** Identify the data collection instrument, e.g., exam, project, paper, etc. that will be used to gauge acquisition of this student learning outcome and explain how it assesses the desired knowledge, skill or ability. A copy of the data collection instrument and all scoring rubrics associated with this student learning outcome are to be attached to the plan.

The instruments used to assess student knowledge of data and knowledge management are questions and problems embedded in assignments and exams administered through this course. Specifically, the questions and problems test the concepts below, which, together effectively gauge overall student understanding:

1. Students will demonstrate knowledge of issues related to modeling, securing and sharing organizational data resources.
2. Students will demonstrate knowledge of data warehousing and data mining concepts.
3. Students will demonstrate the ability to formulate and assess rule-based systems, decision trees.
4. Students will demonstrate the ability to use BI applications to make decision support systems, statistical analysis, forecasting and data mining.

**Methodology:** Describe when, where and how the assessment of this student learning outcome will be administered and evaluated. Describe the process the department will use to collect, analyze and disseminate the assessment data to program faculty and to decide the changes/improvements to make on the basis of the assessment data.

This SLO will be measured in MBAD 6201: Business Intelligence and Analytics, every other Fall semester.

Student performance for each of the effectiveness measures will be assessed using questions embedded in course exams. Students that answer 80% of the questions associated with each effectiveness measure correctly will be deemed to have satisfied learning related to that effectiveness measure.

Program faculty members are responsible for collecting assessment data. Program faculty report(s) individual student assessment results to the Belk College of Business Assurance of Learning [AoL] Data Center. The Data Center collects and combines the program's assessment data from across multiple courses. The Data Center then aggregates the data and returns statistical results to all program faculty. Program faculty members analyze these results and hold a closing the loop meeting each semester to complete the continuous improvement process. At this meeting, program faculty determines what changes or improvements should be made to instruction, the program, individual courses, or to the assessment process. Changes are implemented the next time the course is taught.

**Performance Outcome:** Identify the percentage of students assessed that should be able to demonstrate proficiency in this student learning outcome and the level of proficiency expected.  
*Example: 80% of the students assessed will achieve a score of "acceptable" or higher on the Oral Presentation Scoring Rubric*

80% of students will answer 80% of the questions correctly and/or earn a score of 80 or higher (out of 100) on the assessment questions and problems related to each effectiveness measure.

## Student Learning Outcome 2

(knowledge, skill or ability to be assessed)

Students will be able to conduct qualitative and quantitative analyses that help to guide marketing decisions.

**Effectiveness Measure:** Identify the data collection instrument, e.g., exam, project, paper, etc. that will be used to gauge acquisition of this student learning outcome and explain how it assesses the desired knowledge, skill or ability. A copy of the data collection instrument and all scoring rubrics associated with this student learning outcome are to be attached to the plan.

The instruments used to assess student mastery of this learning outcome will include homework assignments and questions embedded in course exams. Specifically, the instruments will gauge students' mastery of the following effectiveness measures:

1. Students will demonstrate the skills necessary to translate marketing challenges and opportunities into appropriate analytical issues.
2. Students will demonstrate the ability to use data analysis tools to guide decision making process.
3. Students will demonstrate knowledge of the market research process.
4. Students will demonstrate knowledge of the language of market research.

**Methodology:** Describe when, where and how the assessment of this student learning outcome will be administered and evaluated. Describe the process the department will use to collect, analyze and disseminate the assessment data to program faculty and to decide the changes/improvements to make on the basis of the assessment data.

This SLO will be measured in MBAD 6276: Consumer Analytics, every other Fall semester.

Student performance for each of the effectiveness measures will be assessed using questions embedded in course exams. Students that answer 80% of the questions associated with each effectiveness measure correctly will be deemed to have satisfied learning related to that effectiveness measure.

Program faculty members are responsible for collecting assessment data. Program faculty report(s) individual student assessment results to the Belk College of Business Assurance of Learning [AoL] Data Center. The Data Center collects and combines the program's assessment data from across multiple courses. The Data Center then aggregates the data and returns statistical results to all program faculty. Program faculty members analyze these results and hold a closing the loop meeting each semester to complete the continuous improvement process. At this meeting, program faculty determines what changes or improvements should be made to instruction, the program, individual courses, or to the assessment process. Changes are implemented the next time the course is taught.

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*Example: 80% of the students assessed will achieve a score of “acceptable” or higher on the Oral Presentation Scoring Rubric*

80% of students will answer 80% of the questions correctly and/or earn a score of 80 or higher (out of 100) on the assessment questions and problems related to each effectiveness measure.