GRADUATE CURRICULUM FORMS
ILLINOIS STATE UNIVERSITY - NEW PROGRAM PROPOSAL

New Graduate Program (Majors, Sequences, Certificates) Proposal
Illinois State University - Graduate Curriculum Committee

Program Department Marketing

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Coauthor(s) None

Title of New Program Business Analytics Graduate Certificate

Submission Date Thursday, September 6, 2018

Email hlmelto@ilstu.edu

Campus Address 5590 Marketing

Version 1 **ID** 71

Proposed Starting Catalog Year 2019-2020

1. **Proposed Action**

New Major

New Sequence

New Certificate

More than 50% of courses in this program are Distance Education

2. **Provide *Graduate Catalog* copy for new program.**

Business Analytics Graduate Certificate

12 total hours are required to complete this graduate certificate.

The required courses must be completed with grades not lower than a "C" while maintaining a cumulative GPA of at least a 3.00.

Required courses (12 hours): MBA 416, ACC 471, MKT 440, MKT 445.

3. **Provide a description for the proposed program.**

The ISU Graduate Business Analytics Certificate Program is designed for students who (1) have completed an undergraduate degree program, and (2) have had undergraduate training in business and/or have been employed at least one year in a business enterprise. The certificate program consists of four courses (3 credit hours each) which can be completed in an academic year. Two courses are offered regularly in the fall semester and two courses are offered regularly in the spring semester. The 12 credit hours of the Business Analytics certificate would count toward an MBA degree from ISU if the student later enrolled in the MBA program.

General topics of the four Business Analytics courses follows.

MBA 416 Applied Tools for Business Decision-Making

Introduction to quantitative tools used in business decision making. Students are introduced to research design, statistics, data analytics, data visualization and SPSS. Prerequisite: Math and Statistical Concepts or equivalent

1. Introduction to Research
2. Descriptive Statistics: Exploring Data
3. Survey Construction
4. Sampling Techniques
5. Confidence Interval Estimation
6. Hypothesis Testing
7. Correlation and Simple Regression
8. Multiple Regression Basics
9. Advance Multiple Regression Topics
10. Two Sample t-test
11. Analysis of Variance (ANOVA)
12. Advanced Data Visualization of Big Data (e.g., use of Tableau software, business dashboards, mapping techniques, constructing tables that tell a meaningful story)
13. Additional Techniques for Mining Big Data
14. Marketing, Accounting, Supply Chain Management, Human Resources and Finance applications of Data Analytics

ACC471 Advanced Business Analytics

This course will enable students to comprehend, explore and manage emerging issues confronting the field of advanced business analytics. The students will learn about various data analytics concepts and techniques that assist in data-driven decision making. The course uses Excel, XLMiner, and Frontline Solver.

1. Spreadsheet Designing
2. Data Exploration and Preparation
3. Predictive Analytics

   a. Classification and Prediction Trees
   b. Logistic and Multiple Linear Regression
   c. K-nearest Neighbor Analysis
   d. Neural Networks
   e. Short-Term Forecasting

1. Prescriptive Analytics

   a. Non-Linear Optimization
   b. Linear Optimization
   c. Monte Carlo Simulation

MKT 445 Advanced Marketing Analytics

This course focuses on data preparation skills to combine data sets from a wide variety of sources, clean and prepare them for use in analysis, as well as data visualization skills to effectively communicate insights from large size data. The course also introduces students to a variety of analytic methods and develop software skills through hands-on computer lab exercises, assignments, case studies, in-depth reading of articles, and a semester-long group research project.

1. Review of Basic Statistical Concepts
2. Data handling and cleaning using R, Excel
   a. Analyzing non-normal data (General Linear Model)
   b. Fitting a Model to Data
3. Marketing Analytics

   a. Segmentation Strategy (Cluster Analysis)
   b. Measuring Customer Value
   c. Mapping Customer Journey (Link Analysis)
   d. Heterogeneity in Customer Response (Hierarchical Linear Model)
   e. Analyzing Panel Data
   f. Developing Marketing Experiments
   g. Analyzing Customer Reviews (Text Analytics)
   h. Predictive Modeling (Linear Regression)

1. Social Media Monitoring (use of NUVI tracking software and Meltwater)
2. Programming Language Primer: SAS, R and Python
3. Client Project Data Analysis and Presentation

MKT 440 Brand Management and Analytics

Managing a brand and building a long-term, sustainable value is a task that can and should be studied systematically. Based on the most current texts and the latest techniques and tools available in analytics programs, this course provides students with advanced knowledge and practical skills necessary to make day-to-day and long-term brand-related decisions.

1. Brands and Brand Management Overview
2. Measurement of Customer-Based Brand Equity, Brand Positioning, and Brand Performance
3. Website Creation using Wordpress
4. Search Engine Optimization
5. Social Media Monitoring using NUVI, Meltwater, and Hootsuite
6. Customer Analytics Overview
   a. Inbound Marketing
   b. Remarketing
   c. Online Advertising
   d. Online Reputation Management
   e. Google Analytics
   f. Facebook Pixel
   g. Webmaster Tools
   h. HTML Primer
7. Client Project (SEO) Workshop and Presentation
8. Marketing Data Mining
   a. Cluster Analysis, Hierarchical Clusters, K-Nearest Neighbor Analysis using IBM SPSS Statistics
   b. Supervised Machine Learning using SAS Enterprise Miner
      i. Regression Analysis

        ii. Decision Tree Analysis
        iii. Discriminant Analysis
        iv. Neural Network Models
        v. Customer Scoring based on Champion Results
    c. Data Visualization
        i. Tableau Basics and Intermediate-level Training
        ii. SAS Visual Analytics Training and Combining Visual Data and Statistical Analyses

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4.   **Provide a rationale of proposed program.**

The Illinois State University College of Graduate Business Analytics Certificate Program is designed to give students skills needed to generate actionable business insights from the ever increasing volume, variety and velocity of data available to businesses. The courses are designed to build advanced data analytic skills with application to business problems across various functional areas, such as marketing and sales, accounting, supply chain management, human resources and finance.

Business analytics uses data and statistical models to drive fact-based planning and decision making, and there is an increasing trend in business to use analytics to create business value and competitive advantage. 58% of respondents to a MIT Sloan Management Review survey of business executives said their companies were gaining competitive value from analytics. Companies vary in widely in the sophistication of their uses of analytics. They can range from (1) basic usage of analytics for financial and supply chain management, using spreadsheets and structured data, through (2) use of analytics to guide marketing strategy and day-to-day operations enabled by data visualization and advanced statistical models, to (3) use of data integrated across the enterprise with a growing emphasis on deriving insights from unstructured data (Kiron and Shockley 2011). The target audience for the Graduate Business Analytics Certificate includes local employees seeking to advance their career and enhance their contribution to the business enterprise by improving their proficiency in data analytics, as well as MBA students seeking additional business analytics electives.

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5.   **Describe the expected effects of the proposed program on existing campus programs (if applicable).**

The Graduate Business Analytics Certificate program will (1) increase enrollment in existing MBA courses, (2) provide an additional certification opportunity to MBA students, and (3) provide a new pool of potential MBA recruits from among local employees who complete the certificate program and might be interested in taking additional courses to complete the MBA

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6.   **Describe the expected curricular changes required, including new courses. If proposals for new courses that will be or have been submitted, please reference those related proposals here:**

The four courses in the certificate program are already offered in the graduate program.

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7.   **Anticipated funding needs and source of funds.**

There are no new costs associated with this certificate program, in that the four courses of the certificate program are already offered in the graduate program.

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8.   **No**   **Does this program count for teacher education?**

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9.   **The following questions must be answered.**

    N.A.   Have letter(s) of concurrence from affected departments/schools been obtained?

        A departments/school is affected if it has a program with significant overlap or if it teaches a required or elective course in the program.

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10.   **Routing and action summary for New Graduate Program:**

Proposal Routing

1. Marketing Department Curriculum Committee Chair

Duleep Delpechitre (website)	Duleep Delpechitre	9/7/2018 10:56:29 AM
Signature	Print	Date

2. Marketing Department Chair/School Director

Horace Melton (website)   Horace Melton   9/20/2018 9:07:11 AM
Signature   Print   Date

3. College of Business College Curriculum Committee Chair

Meredith Downes (website)   Meredith Downes   10/1/2018 10:39:46 AM
Signature   Print   Date

4. College of Business College Dean

Ajay Samant (website)   Ajay Samant   10/1/2018 1:20:24 PM
Signature   Print   Date

5. Graduate Curriculum Committee Chair

Robert Quinlan (website)   Robert Quinlan   10/24/2018 10:16:47 AM
Signature   Print   Date

6. Director of Graduate School

Amy Hurd (website)   Amy Hurd   10/29/2018 8:51:54 AM
Signature   Print   Date

All new graduate programs (majors, sequences, certificates) are routed by the G.C.C. to the Academic Senate

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Comments on Proposal. *(Required if proposal rejected)*

Academic Senate Approver

[Approve]   [Reject]

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