BUSINESS SYSTEMS AND ANALYTICS, CERTIFICATE

Program Description

Business Systems & Analytics (BSA) is the process of transforming data into insights for informed business decision making. Data management, data visualization, predictive modeling, data mining, forecasting, business application programming and modeling, simulation, and optimization are some of the methodologies used in business analytics to create insights from data. The MS program in BSA is designed to reflect an interdisciplinary play between the business analytics fields of Statistics, Operations Research, and Information Systems; and the functional business fields of Accounting, Finance, and Marketing. The program provides students with a practical and theoretical understanding of the latest business analytics tools and technologies for effective and informed problem-solving and decision-making. The emphasis across required MS courses in BSA is on problem formulation, modeling, solution, visualization, and interpretation, and communication of analytical results, as well as the sound application of analytic frameworks and technologies.

The M.S. program is structured in a Hybrid and Online format which allows working professionals greater flexibility and convenience as they move through the program. Courses are delivered in mix of hybrid and fully online courses.

- The hybrid courses are 50% online and 50% in the classroom. By leveraging the latest teaching and learning technologies, the educational experience reflects the ways in which companies operate today. This new approach creates an effective educational experience for working professionals attending as part time students.
- The fully online courses provide working professionals with greater flexibility and convenience as they move through the program. We have developed a learning experience that leverages the latest teaching and learning technologies to deliver an environment to deepen our students' understanding of business and markets, and improve their decision making skills. With the Lasallian emphasis on the value and impact of personalized interactions among professors and classmates, our students are fully engaged in their education.

Mission

School of Business' Mission

Experiential and engaged learning is at the heart of everything we do. We provide excellence in business education through the integration of current business concepts with diverse experiential learning opportunities. As a Catholic Lasallian university, we are committed to the principle that all knowledge is practical and empowering, filled with the capacity to transform lives. Anchored by a foundation which affirms the value of both liberal arts and professional studies, our students are prepared to lead engaged and fulfilling lives marked by a commitment to the common good.

Master of Science in Business Systems and Analytics' Program Mission

The mission of the BSA program is to advance knowledge and promote the use of business analytics and data science for informed and effective problem-solving and decision-making. Through its faculty, curriculum, students, department-sponsored activities, and partnerships with the alumni and business community, the BSA major seeks to provide a value-added experience for students by communicating and demonstrating the importance of and the need for information business analytics and data science knowledge and skills in the workplace.

Program Goals

The goal of the BSA program is to advance student knowledge, skills, and competency in developing business analytics and data science solutions that can improve productivity and business performance. In today's information age, professionals entering the marketplace require specialized training and education in problem-solving, creative thinking, analytical skills, organizational skills, technology skills, and communication skills. The BSA program and faculty are committed to developing these competencies through educational and extra-curricular activities.

Program Specific Information

Business education has been part of the La Salle curriculum since its founding in 1863. The School of Business, one of three schools in the University, was established in 1955, and its MBA program began in 1976. As a business school in a Catholic, Lasallian University, students are taught fundamental business knowledge and skills within an ethical framework which emphasizes the primacy and value of human dignity.

STEM Designation

The MS program in BSA meets the requirements of what the Department of Homeland Security considers to be a science, technology, engineering, or mathematics (STEM) field of study. International students who graduate from these programs may be eligible to apply for a 24-month OPT extension.

Admission Deadlines

New students will be admitted each Fall and Spring semester. All application documents must be received one week prior to the start of the term. International student applications should be completed at least two months prior to the dates listed above.

- **Application deadline** - the deadline to complete an application for consideration of admission for a particular term is 2 weeks prior to the start of that term.
- **Documentation deadline** - The deadline to submit all corresponding documentation for admission consideration is two Wednesdays prior to the start of that particular term.
- **Registration deadline** - The deadline to register is the Monday prior to the start of the term.

Admission Requirements

The Admission Committee evaluates each applicant's interest, aptitude, professional experience and prior academic success to assess his/her potential for achievement in graduate business studies. The structure of the La Salle MS in Business Analytics program lends itself to those students with or without an undergraduate degree in business.

Before an applicant will be evaluated, he/she must submit the following information:

- Application (Online)
- Official transcripts from all schools attended

- Test scores from the Graduate Management Admission Test (GMAT), or, with permission of the Director, the Graduate Record Examination (GRE).
- Professional resume

Based on prior academic and/or professional success, the admission requirement to take the GMAT/GRE may be waived or deferred. Please see the section below "Waiver of GMAT or GRE".

All documents should be sent to the following:

Office of Graduate Enrollment
La Salle University- Box 826
1900 W. Olney Avenue
Philadelphia, PA 19141
215.951.1100/ Fax 215.951.1462
grad@lasalle.edu

Because each applicant's background and profile is unique, the Admission Committee does not establish specific quantitative minimum requirements for admission; the admission committee's decisions are based on evaluating many factors to determine a student's potential for success in the MS program.

Please refer to the University's Nondiscrimination Policy in the General Reference section of this catalog. Admission is based solely upon an applicant's qualifications.

Waiver of GMAT or GRE Requirement

Applicants with an undergraduate business degree from an AACSB-accredited program who have a minimum overall grade point average of 3.2 or above are not required to complete the GMAT or GRE exam for admission into the program.

The GMAT (or GRE) may be waived for an applicants if he/she meets the one of the following:

- Has an undergraduate business degree from an AACSB-accredited University and has
  - An overall GPA of 3.2 or above,
  - An overall GPA of 3.0 or above and 3 years of professional experience, or
  - More than 5 years of professional experience.
- Holds a CFA Charter or CPA license or has passed the CPA or CFA certifying exams
- Earned master's degree or higher from a graduate program accredited program in its discipline.

The GMAT/GRE may be deferred and eventually waived if an applicant has graduated with a 3.0 GPA in any undergraduate discipline and has at least 2 years of business experience. These students are eligible to take up to 12 credits in the program. If the student achieves a B- or better in each course and an overall GPA of 3.3, the GMAT/GRE will be waived.

Degree or Certificate Earned

Certificate in Business Systems & Analytics

Required for Program Completion

- Courses
  - 4 Courses
- Credits
  - 12 Credit Hours
- GPA
  - 3.0

Student Learning Outcomes

Learning Goal 1: To use analytic methods and information systems tools and technologies to drive effective and data-driven solutions to business problems and decisions.

- Learning Outcome 1.1: Students should be able to perform data analysis using various analytical techniques, interpret results to solve business problems and make informed business decisions.
- Learning Outcome 1.2: Students should be able to use data management tools and technologies to improve organizational support of data-driven solutions to business problems and decisions.
- Learning Outcome 1.3: Students should be able to formulate problems and develop data-driven solutions to business problems and decisions using information systems and analytics tools and technologies.
- Learning Outcome 1.4: Students should be able to identify, formulate, and solve optimization problems, and perform sensitivity analysis and simulation to examine alternative scenarios.

Learning Goal 2: To effectively communicate the results of analytic solutions to business problems and decisions.

- Learning Outcome 2.1: Students should be able to effectively convey, through oral and written communication, the results of analytical solutions to business problems and decisions.
- Learning Outcome 2.2: Students should be able to perform exploratory analysis and design effective reports, visualizations, and dashboards.
- Learning Outcome 2.3: Students should be able to apply data visualization best practices.

Learning Goal 3: To use analytics tools and technologies for effective functional business decision making.

- Learning Outcome 3.1: Students should be able to utilize accounting analytics methods and technologies for financial and managerial accounting problem solving and decision making.
- Learning Outcome 3.2: Students should be able to use financial analytics tools and techniques in business decision making.
- Learning Outcome 3.3: Students should be able to apply marketing analytics tools and metrics to investigate the impact of marketing activities and strategies on business productivity.

Tuition and Fees

Students may find the tuition and fee schedule on the Financial Aid website (http://www.lasalle.edu/financialaid/undergraduate-tuition-and-fees/).

Tuition Assistance

There are loan programs available for graduate students. Information about financial aid and the application forms may be obtained from Student Financial Services (https://www.lasalle.edu/financialaid/), La Salle University, Philadelphia, PA 19141 or by calling 215.951.1070.

M.S. Academic Standing and Graduation Requirements

Every student in La Salle University's M.S. program is required to maintain a cumulative scholastic average of 3.0, which translates to an overall G.P.A. equivalent to a B (a B- average is not sufficient). A student whose

academic performance falls below this standard is subject to academic review by the Program Manager, and may be required to withdraw from the program, revise his/her course of study or repeat specific classes.

A student with a cumulative grade point average below 3.0 is automatically in academic jeopardy whether or not he/she receives written notification of this status, and regardless of the number of credits earned. Students with a G.P.A. below 3.0 should consult with the Program Manager to ascertain any potential actions to improve academic success within the program.

To graduate from the M.S. in Business Analytics Program at La Salle, a student must have:

- A minimum of a 3.0 G.P.A. overall within the M.S. curriculum, and,
- No more than two grades of "below" a B- in all courses.

Should a student complete all required courses, but fall below a 3.0 cumulative GPA, he/she will not be eligible to graduate.

Academic Requirements

Students must complete 12 credits to complete the Certificate in Business Systems & Analytics at La Salle University.

Business Perspective

The **Business Perspective** course is designed to develop a general understanding and acquire core competencies in business analytics before taking more advanced and technical courses.

Data Perspective

The **Data Perspective** courses are designed to teach students the role of data in business analytics by studying data warehousing, data mining, simulation, and optimization. The students also learn to communicate the practical implications of quantitative analyses effectively through data visualizing and dashboarding.

Systems Perspective

The **Systems Perspective** courses are designed to teach students the problem-solving methodology that employs computer programming and scripting. Emphasis is placed on identifying the capabilities and limitations of statistical computing languages for big data. Students will learn skills to solve big data problems by designing the solution logic and formal representation of program specifications using selected high-level languages. The students also learn about systems analysis and structured analysis, and design methodology for complex business systems.

Code	Title	Credits
Business Perspective		
MBA 693	Business Analytics for Informed and Effective Decision Making	3
Data Perspective		
BSA 720	Data Warehousing and Data Mining	3
Select one of the following:		3
BSA 730	Optimization and Simulation	
BSA 740	Data Visualization	
Systems Perspective		
Select one of the following:		3
BSA 700	Business Applications Programming	
BSA 710	Systems Analysis and Database Design	
Total Credits		**12**

Course Sequence

A student's course sequence and timing will be based upon their desired program completion plans. The certificate can be completed in one year, but can extend to two years if the timing works better for the student.

We offer the courses in 8-week terms, five times per year. The terms begin in August, October, January, March, and May. New students can enroll in the August or January terms.

At the time of admittance, students will work with an advisor to develop an appropriate course sequence.

Course Descriptions

Business Systems & Analytics

BSA 700 Business Applications Programming
This course is designed to introduce students to the principles of business application programming for business analytics using selected high-level languages such as R, Python, and Hadoop. Emphasis is placed on identifying the capabilities and limitations of statistical computing languages for big data. Students will learn skills and techniques to solve big data problems through a series of steps that involve identification of problems, design of the solution logic, formal representation of program specifications, and implementation. The focus is on accessing data from multiple sources, manipulating different types of programming objects, performing character manipulation, and generating reports. Students will design and develop several computer programs throughout the term. Prerequisite(s): MBA 693

BSA 705 Emerging Bus Sys & Analytics
The purpose of this course is to provide students with an understanding of the critical role that good data and effective information systems play in today's organizational problem solving and decision making. There are two main components of this course: (1) the historical perspective on the strategic role of data and computer systems; and (2) the structures, issues, and trends in contemporary business systems and analytics. Corequisite: MBA 820 Corequisite: MBA 820

BSA 710 Systems Analysis and Database Design
This course is about structured analysis and design methodology for complex business systems. Students become familiar and use Entity Relationship Diagrams, Data Structure Diagrams, Data Flow Diagrams, Data Dictionaries, and Process Specifications to develop Systems Specifications. These specifications are utilized as the blueprint to develop and implement relational databases, and explore the Structured Query Language (SQL) used to manipulate and operate the database. Prerequisite(s): MBA 693

BSA 720 Data Warehousing and Data Mining
This course focuses on data warehousing and data mining in organizations. Topics covered in the course include: data warehousing and mediation techniques aimed at integrating distributed, heterogeneous data sources; data mining techniques such as rule-based learning, decision trees, association rule mining, and statistical analysis for discovery of patterns in the integrated data; and evaluation and interpretation of the mined patterns using visualization techniques. Prerequisite(s): MBA 693

BSA 725 Healthcare Analytics
Today's healthcare organizations are under intense regulatory and financial pressures to improve quality, efficiency, patient safety, patient satisfaction, and positive outcomes. This course is concerned with the study of how descriptive, diagnostics, predictive, and prescriptive analytics tools and techniques can impact the overall performance of healthcare organizations. Students learn to extract, collect, analyze, visualize, and interpret data from patient health records, insurance claims, financial records, and tell a compelling and actionable story. Class exercises enable students to understand ways to improve the effectiveness and efficiency of healthcare organizations. Prerequisite(s): MBA 693

BSA 730 Optimization and Simulation
This course introduces students to decision making and problem solving with simulation and optimization tools and techniques. Students learn to formulate and construct a decision model with spreadsheets and use the optimization tools, Monte Carlo simulation, and sensitivity analysis to generate and interpret solutions. The course covers different types of optimization and simulation models, including linear programming, sensitivity analysis, integer linear programming, goal programming, multiple objective optimization, simulation modeling, and queuing theory. Prerequisite(s): MBA 693

BSA 740 Data Visualization
One of the skills that characterize great business data analysts is the ability to communicate practical implications of quantitative analyses to any kind of audience member. In this course, students will learn how to visualize data, tell a story, and explore data by reviewing the core principles of data visualizing and dashboarding. The course aims to focus on effective and high impact visualizations of common data analyses to help them convey conclusions directly and clearly. Students will be able to get practiced in designing and persuasively presenting business "data stories" that use these visualizations, helping stakeholders make decisions and take action based on their business data capitalizing on design principles. Prerequisite(s): MBA 693

BSA 780 Applied Research in Business Systems and Analytics
This customized course provides students with a unique opportunity to integrate their academic work with a wide range of professional studies including but not limited to independent studies, research projects, or internships. Prerequisite(s): MBA 693 and Approval of supervising professor and program director

BSA 790 Special Topics in BSA

Master of Business Administration

MBA 590 Professional Development Seminar
This course focuses on career development and building a "Professional Skills Portfolio." The initial orientation toward building a resume and developing strategies to obtain a job provides the basis of continued career planning and professional growth. This course is offered in conjunction with MBA 811.

MBA 592 Written Communication Skills for Business
Students will learn to plan, draft, revise, and edit documents (such as letters, memos, e-mails, executive summaries, proposals, and reports) required of them as professionals in a business environment.

MBA 601 Financial Accounting
This course is an introductory study of financial accounting. It includes the study of basic accounting language and concepts, recording financial transactions, preparation and interpretation of financial statements, accounting methods, business decisions, inventory valuations, and methods of obtaining capital.

MBA 602 Financial Markets
This course serves as an introduction to the financial system and its relationship to the financing of domestic and international business activity. Financial market components and phenomena such as financial instruments, institutions, flow of funds, market efficiency, interest rate determination and term structure, exchange rates, and the balance of payments are analyzed. The governmental impact on financial markets, manifested through monetary and fiscal policy and regulation, is also covered. An introduction is given to the concept of financial asset valuation and the time value of money. The emphasis is on the significance of these elements for conducting the financial affairs of businesses.

MBA 603 Business Economics for Managers
This course is designed to teach the principles of both micro and macro economics and to help the students understand the economic events that shape the world, markets and businesses. The course develops students' abilities to interpret how businesses form and operate under various market situations. Topics such as supply and demand, elasticity, relevant cost definition and relationships, profit optimization, market characteristics and long-run profitability implications, resource costing, and global market competitive responses are studied. The course further examines the role and activities of the various economic sectors consisting of households, businesses, and governments, and how those actions impact the state of the economy. The roles of government and the Federal Reserve are evaluated and their impact examined. Topics such as Gross Domestic Product, economic growth, inflation, unemployment, fiscal policy, monetary policy, banking, international trade, and exchange rates are studied.

MBA 690 Creating Customers Through Effective Marketing Management
The course shows how the techniques of marketing management can be used to attract and satisfy customers while building long-term business profitability. Topics include (1) market, consumer, and competitive analysis; (2) segmentation, targeting, and positioning; (3) product development, pricing, promotion, and distribution; and (4) marketing strategy and planning.

MBA 691 Managerial Accounting for Decision Making, Planning, and Control
This course focuses on the firm's management accounting system as its primary information system. It examines the problems of cost measurement, planning, coordination, control, and performance evaluation. It explores how accounting systems address business problems and evolve in response to the changing economic environment. The course will relate ethical and global issues to managerial accounting topics. The students will explore and analyze "real world" data and apply their gained knowledge to contemporary managerial accounting problems and cases. Prerequisite(s): MBA 601

MBA 692 Financial Performance: Control and Measurement
This is a survey course focusing on how managers can construct a decision-making process focusing on maximizing the value of the firm. Because the majority of financial decisions require an estimate of future events, considerable time will be spent investigating how to achieve the above objectives, subject to the constraints of an uncertain future. Outside readings, case studies, and text material will be used to integrate current financial theory with pragmatic financial decision making. A working knowledge of the basic concepts in finance, accounting, and statistics is assumed. The use of an electronic spreadsheet is needed for homework assignments and case analysis. Prerequisite(s): MBA 601, MBA 602, and Completion of MBA Math (if not waived)

MBA 693 Business Analytics for Informed and Effective Decision Making
This course introduces students to the growing field of business analytics. Business analytics is the use of data, information technology, statistical analysis, and quantitative methods and models to support effective organizational problem solving and informed decision making. The course includes methods, tools, and techniques for summarizing and visualizing historical data, which is relevant to descriptive analytics -- the use of data to find out what has happened in the past or is currently happening; methods, tools, and techniques for extracting information from existing data in order to determine patterns, which is relevant to predictive analytics -- the use of data to find out what will happen in the future; and methods, tools, and techniques for optimization, which is relevant to prescriptive analytics - the use of data to determine the best course of action in the future. Prerequisite(s): Completion of online Math Assessment (if not waived).

MBA 810 Developing Your Leadership Skills
This experiential course emphasizes the importance of feedback and self- assessment for leadership development. It includes extensive assessment of each participant's management style and skills based on self-evaluations (using structured questionnaires, decision making exercises, and role plays) and feedback from coworkers, faculty, and other participants. It includes a full day assessment workshop. Leadership development experiences emphasize time and stress management, individual and group problem-solving, communication, power and influence, motivation, conflict management, empowerment, and team leadership. Each participant identifies skills he or she needs to develop and reports on efforts to develop those skills.

MBA 811 Leadership: Theories and Skill Development
This course reviews major leadership theories including trait theory, behavioral theories, contingency models, expectancy theory, path goal theory, transformational leadership, and servant leadership. The course also covers a series of in-depth exercises that address leadership skills including individual decision making, team decision making, nominal group technique, problem framing, negotiation, and managing organizational change. Students are expected to complete a written exam and a series of five short analytical papers.

MBA 820 Information Technology for Decision-Making
This course is about the manager's responsibilities for problem solving and decision making, and those areas in which information technology can be used to gain the insight needed to support selection of decision alternatives. Students learn about the role of data, information, and knowledge in managerial problem solving and decision making. Transactional processing and database management systems (DBMS) are used to store, manage, and retrieve data in organizations. Decision support system (DSS) tools and technologies (such as natural language programming and influence diagramming) are used to organize data into information for decision analytics. Expert systems (ES) are used to synthesize information into knowledge for knowledge management. Students are required to use DBMS, DSS and ES software packages in a hands-on environment. Prerequisite(s): MBA 693

MBA 830 Financial Statement Analysis
This course integrates the areas of finance and accounting and is designed to provide students with the ability to analyze financial statements, understand the incentives of companies to "manage" earnings through their choices of accounting methods, understand the limitations to the usefulness of financial statements, and understand the value of financial statements in decision-making from the perspective of investors, creditors and management. Prerequisite(s): All foundation courses, MBA 691, MBA 692

MBA 840 Frameworks for Socially Responsible Decision Making
This course is designed to explore the complex ethical, legal, cultural, political, social, and economic issues confronting individuals, groups, and organizations. We will use various models and theories to develop critical thinking and problem-solving skills to address the issues of a diverse set of organizational stakeholders. Prerequisite(s): All required foundation courses

MBA 902 Competitive Strategy
This integrative capstone course is designed to expose students to strategies that companies use to build and sustain competitive advantage in the global market. The course provides students with industry, competitor, and business level analytic tools that help students to assess factors that influence strategy formulation and strategy implementation in both domestic and global markets.

Faculty

Department Chair: Madjid Tavana, Ph.D.
Director: Nicole Blair, M.B.A., M.S.
Professors: Jiang, Tavana
Associate Professors: Leauby, Ugras
Assistant Professors: Radetskiy, Varzgani

Emeritus Associate Professors: Kennedy, Szabat

Program Contact Information

M.S. in Business Systems and Analytics
Founders' Hall Room 231
blairn@lasalle.edu
(215) 951-1057

Staff Contact Information

Nicole Blair
Director of PT MBA and MS in Analytics Programs
215.438.6676
blairn@lasalle.edu (blairn@lasalle.edu)

If you have any questions regarding the M.S. in Business Analytics program, please contact: blairn@lasalle.edu or visit our website (https://online.lasalle.edu/degrees/business/bus-system-analytics-certificate/).