REGULATIONS FOR THE DEGREE OF
MASTER OF SCIENCE IN BUSINESS ANALYTICS
(MSc[BA])

These Regulations apply to candidates admitted to the Master of Science in Business Analytics curriculum in the academic year 2018-19 and thereafter.

(See also General Regulations and Regulations for Taught Postgraduate Curricula)

Admission requirements

MSc(BA)1   To be eligible for admission to the courses leading to the degree of Master of Science in Business Analytics, candidates shall
- (a)   comply with the General Regulations;
- (b)   comply with the Regulations for Taught Postgraduate Curricula;
- (c)   hold
    - (i)   a Bachelor's degree with honours of this University; *or*
    - (ii)   another qualification of equivalent standard from this University or from another University or comparable institution accepted for this purpose; and
- (d)   satisfy the examiners in a qualifying examination, if required.

Qualifying examination

MSc(BA)2
- (a)   A qualifying examination may be set to test the candidates' formal academic ability or their ability to follow the courses of study prescribed.   It shall consist of one or more written papers or their equivalent, and may include a project report.
- (b)   Candidates who are required to satisfy the examiners in a qualifying examination shall not be permitted to register until they have satisfied the examiners in the examination.

Award of degree

MSc(BA)3   To be eligible for the award of the degree of Master of Science in Business Analytics, candidates shall
- (a)   comply with the General Regulations;
- (b)   comply with the Regulations for Taught Postgraduate Curricula; and
- (c)   complete the curriculum and satisfy the examiners in accordance with the regulations set out below.

Period of study

MSc(BA)4   The curriculum shall normally extend over two academic years of part-time study, or one academic year of full-time study.   Candidates shall not be permitted to extend their studies beyond the maximum period of registration of four academic years of part-time study or two academic years of full-time study.

Completion of curriculum

MSc(BA)5 To complete the curriculum, candidates shall
- (a) satisfy the requirements prescribed in TPG 6 of the Regulations for Taught Postgraduate Curricula;
- (b) follow the courses of instruction and complete satisfactorily all prescribed written work and field work;
- (c) satisfy the examiners in all prescribed courses as specified in the syllabuses and in any prescribed form of examination; and
- (e) have achieved a cumulative GPA of 2.0 or above.

Assessment

MSc(BA)6 Candidates shall satisfy the examiners in all the prescribed courses as specified in the syllabuses. Examinations shall normally be held at the end of each course, unless otherwise specified. Only passed courses will earn credits.

MSc(BA)7 Candidates who have failed a course shall be required to sit for re-examination or to retake the course. If the failure is an elective course, candidates may elect to take another course as a substitute.

MSc(BA)8 Candidates who are unable, because of illness, to be present at the written examination of any course may apply for permission to present themselves at a supplementary examination of the same course to be held at some other time. Failure to sit for supplementary examination as arranged shall automatically result in course failure.

MSc(BA)9 Candidates shall not be permitted to repeat a course for which they have received a passing grade for the purpose of upgrading.

MSc(BA)10 Candidates who have failed a total of more than two examinations/assessments or re-examinations/re-assessments during the entire period of study of the curriculum shall be recommended for discontinuation under the provisions of General Regulations G12.

MSc(BA)11 There shall be no appeal against the results of examinations and all other forms of assessment.

Grading system

MSc(BA)12 Courses shall be graded according to the following grading system:

Grade	Standard	Grade Point
A+		4.3
A	Excellent	4.0
A-		3.7
B+		3.3
B	Good	3.0
B-		2.7
C+		2.3
C	Satisfactory	2.0
C-		1.7

D+	Pass	1.3
D		1.0
F	Fail	0

Assessment results

MSc(BA)13   On successful completion of the curriculum, candidates who have shown exceptional merit at the completion of the curriculum may be awarded a mark of distinction, and this mark shall be recorded in the candidates' degree diploma.

SYLLABUSES FOR THE DEGREE OF
MASTER OF SCIENCE IN BUSINESS ANALYTICS
(MSc[BA])

These syllabuses apply to candidates admitted to the Master of Science in Business Analytics in the academic year 2019-20 and thereafter.

CURRICULUM STRUCTURE

Candidates must read a total of ten courses, each carries 6 credits, comprising five core courses (inclusive of one capstone course) and five elective courses. A list of electives will be announced at the beginning of each module. Candidates may also take up to two elective courses from the taught postgraduate curricula offered by the Faculty of Business and Economics under the advice and approval of the Programme Directors concerned.

Not all the courses listed in the syllabuses will necessarily be offered each academic year.

CORE COURSES

MSBA7001 Business Intelligence and Analytics (6 credits)

Online transactions, mobile applications, Internet of things (IoT) devices, and social media generate massive amounts of data that is crucial for business operations and strategy. Accordingly, businesses increasingly need to know how to capture and analyse such data to gain managerial and strategic insights that will improve their competitive position. This course is fundamentally about where various sources of data come from; how to pull it and transform it; how to analyse it through basic data mining, data visualization, and basic analytics techniques; and how to gain original insights from such analyses. Hands-on technical skill development will strongly focus on using Python programming for data scrapping, data mining, and data analytics. Students will also learn the basics of Tableau for data visualization and reporting. This course will set the foundation for other courses in which the student will be expected to find, clean, and use original data, and where more advanced forms of analytics will be introduced.

MSBA7002 Business Statistics (6 credits)

The discipline of statistics is concerned with situations involving uncertainty and variability. Variability greatly affects the interpretation of data. Thus statistics forms an important descriptive and analytical tool. This elementary course presents many standard situations of data analysis and interpretation with emphases on business examples. The statistical analyses of these situations are presented, through use of various statistical software.

MSBA7003 Quantitative Analysis Methods (6 credits)

This course introduces the basic concepts in quantitative business analysis to help you gain a clear understanding of the key elements in the decision making process. We discuss methods that are used extensively in business organizations. These methods provide you with the tools and the skills to approach, analyse, and solve problems of varying scales. Furthermore, this course aims at improving a decision-maker's overall problem solving ability by stressing approaches to 1) understand and question assumptions, 2) consider a richer set of solution alternatives, and 3) consider diverse measures of performance.

MSBA7004   Operations Analytics (6 credits)

Operations are concerned with the management of the processes that convert inputs into outputs. Effective operations management involves managing people, equipment, and other resources.   In the typical business organization, the majority of the costs and controllable assets are managed by the operations function.   Thus, this discipline–with the techniques, procedures and knowledge it encompasses – is a vital segment of business activity.   This course covers a set of techniques that were designed to help people understand operations processes and then improve processes whether those processes are administrative, manufacturing, product design, or service processes.

MSBA7005   Business Analytics Capstone (6 credits)

This course allows students to integrate and apply the knowledge and techniques that they have learned in previous courses in a business analytics project.   Teams of student will carry out business analytics projects using real-world data and have the opportunity to be involved in different stages in business analytics project, including project planning and management, strategy setting, model building, data analysis and interpretation, and result presentation.   In the process students will become familiar with the use of analytics tools, quantitative techniques, and managerial skills in business analytics projects.

ELECTIVE COURSES

MSBA7011   Managing and Mining Big Data (6 credits)

With vast amount of data being available, we are now in the era of "big data".   The knowledge and skills on large-scale data management are becoming increasingly important.   This course provides a broad introduction to big data, including fundamental concepts and basic techniques for data acquisition and aggregation, state-of-the-art algorithms for data analysis, and technologies on modern computing platforms and systems for handling big data.   The students will have extensive hands-on experiences applying these skills to solve practical problems.

MSBA7012   Social Media and Digital Marketing Analytics (6 credits)

Social media and digital advertising have become important sources for understanding the stakeholders of an organization, such as customers, suppliers, and pressure groups.   Analysing data from these sources can reveal useful insights for strategic planning and achieving business objectives.   This course is designed to help students develop strategies to create and extract value from these phenomena. Topics will cover strategic and operational issues pertaining to social media and digital marketing initiatives, metrics to capture and evaluate outcomes, and predictive analysis to link chatter to business performance.   Techniques covered will include social network analytics, SEO/SEM, experimental design, text analytics, and sentiment analysis.

MSBA7013   Forecasting and Predictive Analytics (6 credits)

This course focuses on the fundamentals of forecasting and predictive models for business.   This case-based, interactive course will analyse the applications of these models in various real-world business situations.   Students will gain knowledge and hands-on experience in applying various statistical and data-mining techniques to make predictions by identifying patterns and making projections from historical data.

MSBA7014　Business Simulation (6 credits)

This course introduces simulation models to analyse business processes and solve practical problems. Students will gain basic knowledge such as Monte Carlo simulation and discrete event simulation first, and then be introduced to a simulation package that can be used to evaluate business process performance and, more importantly, facilitate decision making process.

MSBA7015　Service Operations Management (6 credits)

This course focuses on techniques to manage service operations and combine operations, marketing, and human resources aspects of services in the discussion.　Topics will include (1) analyzing service process using queueing models, (2) improving service process with lean concepts, and (3) analyzing customer behavior data and improving service delivery.

MSBA7016　Supply Chain and Logistics Management (6 credits)

The course is designed to prepare students to apply business strategies, analytical methodologies and information technology in supply chain management.　Traditionally industries have focused on operation evaluation and performance improvement of manufacturing process; however, the deficiency of supply chain coordination results in severe downgrade of business competitiveness.　With advent of information technology, computers not only improve manufacturing operation and management, but also enhance strategic decision making as well.　This course focuses on the systems approach to planning, analysis, design, development, and evaluation of supply chain management.

MSBA7017　Financial Engineering (6 credits)

The goal of this course is twofold.　First, it aims to equip students with hands-on skills in using spreadsheet modeling and other analytical tools to solve investment and trading problems in finance.　Excel spreadsheet and VBA will be used as the primary tool of developing analytics, e.g., building term structure models, pricing options by simulation, etc.　The other objective is to introduce Financial Technology ("FinTech")—one of the most promising sectors in financial industry.　FinTech start-ups capitalize on technological innovations to provide better financial services with enhanced efficiency.　We will have an overview on the active product areas in FinTech, including digital wealth management, payment solutions, and capital-raising.　Digital currency and the closely related technology (blockchain) will also be highlighted.

MSBA7018　Marketing Analytics (6 credits)

This course focuses on introducing core principles of marketing and covering key marketing concepts such as managing customer relationships, analysing customers, competitors and marketplace, and developing marketing strategies (segmentation, innovation, and positioning) and marketing programs via various means such as mobile, emails, among others.

MSBA7019　Entrepreneurial Opportunities in Financial Technology (6 credits)

The financial service sectors are experiencing unprecedented changes when they embrace novel technologies (e.g. big data analytics) and business models (e.g. p2p lending).　This course aims to provide students with the essential knowledge and skills necessary for identifying business opportunities and developing new ventures in the emerging financial technology (Fintech) field.　Emphasis is placed

on how to identify and exploit business opportunities in a setting of rapid technological changes and a complex web of regulations and competitors.   This course is ideal for students who anticipate founding Fintech ventures or are currently working for them.

MSBA7020   Accounting Analytics for Managerial Decisions (6 credits)

This course offers an in-depth analysis of the internal management accounting systems and their use in firms' decision-making, planning, and control.   Major topics include the different methods of product costing, differential analysis for decision-making, cost allocation among divisions, design of planning and budgeting systems, and performance measurement issues.   Some management control for multi-segment corporations will be discussed.   Corporate ethics are also incorporated into the discussions.

MSBA7021   Prescriptive Analytics (6 credits)

Modern business environment involves substantial uncertainty, and meanwhile generates vast amount of data.   How can uncertainty be addressed properly and how can data be leveraged effectively in decision making? This course introduces modern optimization methodologies to facilitate decision making under uncertainty in a data-rich environment.   Real-world examples will be presented to showcase that these key quantitative methods provide a significant competitive edge.   Application areas include revenue management, digital advertising, online marketing, logistics, and finance.

MSBA7022   Analysis of High-Dimensional Data (6 credits)

Data-intensive technology is generating unprecedented potential for modeling processes at fine granularity.   The mathematical basis for this is called high-dimensional statistics.   High-dimensional statistics deals with models and estimators that can take many parameters into account.   In this course, we study such models and estimators from methodological and practical perspectives.   We introduce statistical pipelines that range from the choice of an appropriate model and a corresponding estimator to the implementation in R and the interpretation of the outcomes.

ASSESSMENT

Candidates shall be assessed for each of the courses for which they have registered, and assessment is normally conducted in the form of coursework assessment (50-100%) and examinations (0-50%), unless otherwise specified by the course instructor.