Programs in Management Sciences

Dean's Message

Welcome to the FAST School of Management Sciences at NUCES, Islamabad. As the Dean, I am proud to lead one of the top-ranked business schools in the country. Our School is dedicated to providing students with a comprehensive and innovative education that prepares them to become successful leaders in the global marketplace.

We offer a range of degree programs, including BBA, BS Accounting and Finance, BS Fin Tech, BS Business Analytics, MS with multiple areas of specialization, as well as PhD programs. Our curriculum is designed to provide a solid foundation in business fundamentals, while also emphasizing critical thinking, problem-solving, and creativity.

Our faculty members are experienced professionals with extensive knowledge in their respective fields. They are committed to providing students with a rigorous academic experience, engaging them in real-world problem-solving and preparing them to become innovative and effective leaders in the business world.

At the Business School, we are committed to diversity, equity, and inclusion. Our School welcomes students from all backgrounds and cultures, and we believe that a diverse community of learners is essential to achieving academic excellence. We provide a supportive and inclusive environment that

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encourages students to learn from one another and to develop their unique perspectives.

In addition to our academic programs, we offer numerous opportunities for students to engage with the business community, including internships, professional development, and research collaborations. These experiences provide students with valuable insights into the latest business trends and developments, and prepare them for successful careers in a constantly changing global marketplace.

We take great pride in our commitment to providing an exceptional education and preparing our students to become leaders in the business world. I invite you to explore our website, learn more about our programs, and visit our campus to experience firsthand the vibrant and dynamic learning environment of the FSM at NUCES.

Sincerely,

Bachelor of Business Administration

Program Objectives

The 4-years BBA program serves the need of those who are looking for a career in management profession or towards higher education in business administration. Being a program with challenging curricula and contents, it is appropriate for those who have excellent academic record and high potential for success. The BBA degree promises the graduates a higher-level employability at the entry level of management profession by ensuring that the graduates develop the skills and get the competencies they need to make an immediate impact on their career. The program offers a rich blend of general management education and management skills like communication, decision-making, leadership, teamwork and analytical methods. It also aims to sensitize the graduates about their social and environmental responsibilities.

■ Career Opportunities

BBA is a general business degree. Students can choose from a number of pathways as they enter their professional life, including general management, marketing, human resource management, finance, business analytics, and operations management. The program also provides the skills needed by potential entrepreneurs, to facilitate those with entrepreneurial inclination, in planning for and launching their business ventures.

Eligibility

- At least 60% marks in SSC (Matric) or an equivalent examination AND
- At least 50% marks in HSSC or an equivalent examination

Those who have taken the HSSC or an equivalent examination and are awaiting result can also apply.

Selection Criteria

Admission based on NTS-NAT
- Selection is based on marks obtained in NTS NAT IE, NAT-ICS, NAT-ICOM, or NAT-IGS.
- Cut-off marks to be determined by the University.

Admission basis of SAT
A score of 1000 or more only for students who reside abroad.

Admission on the basis of NU Admission Test
- Matric marks 10%
- Intermediate marks 40%
- Score obtained in NU Admission Test / NTS-NAT 50%

Award of Degree

For the award of BBA degree, a student must have:
- Passed courses totalling at least 130 credit hours, including all those courses which have been specified as Core courses.
- Obtained a CGPA of at least 2.00

Tentative Study Plan
Bachelor of Business Administration

Code	Title	Cr. Hrs	Pre Req
Semester – I			
CS1001	IT in Business	2+1	
AF1001	Fundamental of Accounting	3+0	
MT1002	Business Math - I	3+0	
MG1001	Fundamental of Management	3+0	
SS1016	English - I	2+1	
SS1017	Islamic Studies/Ethics	2+0	
	Total 15+2		
Semester – II			
AF1002	Financial Accounting	3+1	AF1001
MG2008	Data Analysis for Business I	3+0	
MG1002	Marketing Management	3+0	
SS2003	Psychology/Sociology	2+0	
SS1006	English - II	3+1	SS1001
SS1003	Pakistan Studies	2+0	
	Total 16+2		
Semester – III			
SS2002	Microeconomics	3+0	
SS2038	Critical Thinking	2+0	
AF2003	Management Accounting	3+0	AF1002
MG2009	Data Analysis for Business II	3+1	MG2008
MG2001	Organizational Behaviour	3+0	MG1001
SS2016	Community Service	2+0	
	Total 16+1		
Semester – IV			
AF2004	Business Finance	3+0	AF1002, MT1002
MG3015	Environmental Science and Sustainability for Business	3+0	
MT2004	Business Math - II	3+0	MT1002
SS2006	Macroeconomics	3+0	
MG2010	Business Communication	3+0	
	Total 15+0		
Semester – V			
MG2003	Consumer Behaviour	3+0	MG1002
AF3001	Financial Management	3+1	AF2004
MG3006	Operations Management	3+0	MT1002, MT1005
MG3004	Human Resource Management	3+0	MG1001
CS3003	Management Information System	3+1	CS1001
	Total 15+2		
Semester – VI			
MG3014	Advanced Business Communication	3+0	MG1002
AF3003	Financial Institutions and Market	3+0	SS2006
MG3002	Business Law	3+0	
MG3005	Methods in Business Research	3+1	
MGxxxx	MG/AF/BA Elective - I	3+0	
	Total 15+1		
Semester – VII			
MG4003	Strategic Management	3+0	MG1001
MG4001	Economy of Pakistan	3+0	
MG4091	Final Year Project - I	0+3	
MGxxxx	MG/AF/BA Elective - II	3+0	
MG4052	Internship	3+0	
	Total 12+3		
Semester – VIII			
MG4008	Business Ethics	3+0	
MG4011	Entrepreneurship	3+0	
MG4092	Final Year Project - II	0+3	MG4091
MGxxxx	MG/AF/BA Elective - III	3+0	
MGxxxx	MG/AF/BA Elective - IV	3+0	
	Total 12+3		

	Total 130		

Note 1
97 credit hours and CGPA of 2.0 or more are required to register in Final Year Project – I.

Domain	Cr. Hrs
General Education	30
Disciplinary Major	79
Interdisciplinary	12
Field Experience	3
Capstone Project	6
Total	**130**

Bachelor of Science (Accounting and Finance)

Program Objectives

Accounting & Finance are the most significant and critical areas in a free enterprise. Good financial management is, therefore, very critical to the economic health of business organizations. However, the constant shifts in economic conditions, intense competition for financial resources and questionable business practices have made financial management a complex and challenging undertaking. The BS Accounting & Finance program is designed to prepare students to meet the challenges posed by this complex but exciting area that has assumed much greater importance in the wake of the recent financial crisis in the world. This crisis has taught us that prudent financial management is a critical success factor for any business enterprise. BS Accounting & Finance is tailored to first impart a broad-based education in the fundamentals of business and management and then develop the quantitative and analytical skills necessary to become prudent, astute and ethical financial managers.

■ Career Opportunities

There are a number of pathways to choose from including audit, taxation, budget analysis, financial accounting and management accounting.

Eligibility

- At least 60% marks in SSC (Matric) or an equivalent examination AND
- At least 50% marks in HSSC or an equivalent examination

Those who have taken the HSSC or an equivalent examination and are awaiting result can also apply.

Selection Criteria

Admission based on NTS-NAT
- Selection is based on marks obtained in NTS NAT IE, NAT-ICS, NAT-ICOM, or NAT-IGS.
- Cut-off marks to be determined by the University.

Admission basis of SAT
A score of 1000 or more only for students who reside abroad.

Admission on the basis of NU Admission Test
- Matric marks 10%
- Intermediate marks 40%
- Score obtained in NU Admission Test / NTS-NAT 50%

Award of Degree

For the award of BS (Accounting & Finance) degree, a student must have:
- Passed courses totalling at least 134 credit hours, including all those courses which have been specified as Core courses.
- Obtained a CGPA of at least 2.00

Tentative Study Plan
Bachelor of Science (Accounting and Finance)

Code	Title	Cr. Hrs	Pre Req
Semester – I			
CS1001	IT in Business	2+1	
AF1001	Fundamental of Accounting	3+0	
MT1002	Business Math – I	3+0	
MG1001	Fundamental of Management	3+0	
SS1016	English – I	2+1	
SS1017	Islamic Studies/Ethics	2+0	
	Total 15+2		
Semester – II			
AF1002	Financial Accounting	3+1	AF1001
MG2008	Data Analysis for Business – I	3+0	
MG1002	Marketing Management	3+0	
SS2003	Psychology/Sociology	2+0	
SS1006	English – II	3+1	SS1001
SS1003	Pakistan Studies	2+0	
	Total 16+2		
Semester – III			
SS2002	Microeconomics	3+0	
SS2038	Critical Thinking	2+0	
AF2001	Corporate Accounting – I	3+0	AF1002
MG2009	Data Analysis for Business – II	3+1	MG2008
MG2010	Business Communication	3+0	MG1001
SS2016	Community Service	2+0	
	Total 16+1		
Semester – IV			
AF2004	Business Finance	3+0	AF1002, MG1002
MG3015	Environmental Science and Sustainability for Business	3+0	
MT2004	Business Math – II	3+0	MT1002
SS2006	Macroeconomics	3+0	
AF2002	Corporate Accounting – II	3+0	AF2001
	Total 15+0		
Semester – V			
AF2005	Cost and Management Accounting	3+0	AF1002
AF3001	Financial Management	3+1	AF2004
MG3003	Basic Econometrics	3+1	MT2001
MG3004	Accounting for Decision Making	3+0	MG1001
CS3003	Management Information System	3+1	CS1001
	Total 15+3		
Semester – VI			
AF3002	Financial Statement Analysis	3+0	AF1002
AF3003	Financial Institutions & Market	3+0	SS2006
MG3002	Business Law	3+0	
MG3005	Methods in Business Research	3+1	
MGxxxx	MG/AF/BA Elective – I	3+0	
	Total 15+1		
Semester – VII			
AF4006	Investment Analysis and Management	3+0	AF3001
MG4011	Entrepreneurship	3+0	
AF4005	Audit and Assurance	3+0	AF1002
AF4091	Final Year Project – I	0+3	
MGxxxx	MG/AF/BA Elective – II	3+0	
MG4052	Internship	3+0	
	Total 15+3		
Semester – VIII			
MG4013	Business Strategy	3+0	MG1001
AF4008	Taxation	3+0	AF1002
AF4007	Financial Risk Management	3+0	AF3001
MGxxxx	MG/AF/BA Elective – III	3+0	
AF4092	Final Year Project – II	0+3	AF4091
	Total 12+3		
	Total 134		

Note 1
98 credit hours and CGPA of 2.0 or more are required to register in Final Year Project – I.

Domain	Cr. Hrs
General Education	30
Disciplinary Major	83
Interdisciplinary	12
Field Experience	3
Capstone Project	6
Total	**134**

Bachelor of Science (Business Analytics)

Program Description

The BS Business Analytics is a dynamic degree program aimed to provide strong analytical and critical thinking abilities to the students who wish to harness the power of data analysis to facilitate decision-making processes in organizations and solve business problems. The program is a blend of business knowledge, analytical tools, statistical techniques and computer applications for solving real business problems. Thus the program prepares the next generation of managers with expertise to manage and analyse data for solving the pressing challenges faced by organization in management, HRM, finance, operations and marketing. The program follows a hands-on approach through which students will use the knowledge of business management, technology and the power of data analytics to create value for their organization. The program emphasizes on the development of all-rounded communications and soft skills, analytical reasoning skills, ethical decision making and problem-solving capabilities.

■ Career Opportunities

In the rapidly growing field of big data and analytics, there is a high demand for skilled professionals who can leverage analytics to translate unstructured data into valuable business insights. The BS BA degree provides a diverse range of career opportunities for the graduates including business analysts, operations analysts, people analysts, financial analysts, and market or consumer analysts.

Eligibility

- At least 60% marks in SSC (Matric) or an equivalent examination AND
- At least 50% marks in HSSC or an equivalent examination.

Those who have taken the HSSC or an equivalent examination and are awaiting result are also to apply.

Selection Criteria

Admission based on NTS-NAT
- Selection is based on marks obtained in NTS NAT IE, NAT-ICS, NAT-ICOM, or NAT-IGS.
- Cut-off marks to be determined by the University.

Admission basis of SAT
A score of 1000 or more only for students who reside abroad.

Admission on the basis of NU Admission Test
- Matric marks 10%
- Intermediate marks 40%
- Score obtained in NU Admission Test / NTS-NAT 50%

Award of Degree

For the award of a BS BA degree, a student must have:
- Passed courses totaling at least 131 credit hours, including all those courses which have been specified as Core courses.
- Obtained a CGPA of at least 2.00

Tentative Study Plan
Bachelor of Science (Business Analytics)

Code	Title	Cr. Hrs	Pre -Req
Semester – I			
CS1001	IT in Business	2+1	
AF1001	Fundamental of Accounting	3+0	
MT1002	Business Math – I	3+0	
MG1001	Fundamental of Management	3+0	
SS1016	English – I	2+1	
SS1017	Islamic Studies/Ethics	2+0	
		Total 15+2	
Semester – II			
AF1002	Financial Accounting	3+1	AF1001
MG2008	Data Analysis for Business I	3+0	
MG1002	Marketing Management	3+0	
MT2004	Business Math – II	3+0	MT1002
SS1006	English – II	3+1	SS1001
		Total 15+2	
Semester – III			
SS2002	Microeconomics	3+0	
SS2038	Critical Thinking	2+0	
MG2009	Data Analysis for Business II	3+1	MG2008
CS2016	Programming for Business	3+1	
SS2016	Community Services	2+0	
		Total 13+2	
Semester – IV			
AF2004	Business Finance	3+0	AF1002, MT1002
MG3015	Environmental Science and Sustainability for Business	3+0	
SS2xxx	Psychology/Sociology	2+0	
SS2006	Macroeconomics	3+0	
BA2006	Fundamentals of Business Analytics	3+0	
SS1015	Pakistan Studies	2+0	
		Total 16+0	
Semester – V			
MG2003	Consumer Behavior	3+0	MG1002
AF3001	Financial Management	3+1	AF2004
MG3003	Basic Econometrics	3+1	MT2001
MG3004	Human Resource Management	3+0	MG1001
CS2003	Data Structures and Business Application	3+1	CS1002
		Total 15+3	
Semester – VI			
BA3001	Machine Learning for Business Analytics	3+1	CS2003
MG3005	Methods in Business Research	3+1	
MG2010	Business Communication	3+0	
BA3004	Database Systems for Business	3+1	CS2016
MGxxxx	MG/AF/BA Elective – I	3+0	
		Total 15+3	
Semester – VII			
BA3002	Business Data and Texting Mining	3+0	CS2003
MG4011	Entrepreneurship	3+0	MG1002
BA4091	Final Year Project – I	0+3	
MGxxxx	MG/AF/BA Elective – II	3+0	
MG4052	Internship	3+0	
		Total 12+3	
Semester – VIII			
BA4001	Decision Science for Business	3+0	BA2006
MG3001	Legal and Ethical Issues in Business Analytics	3+0	
MG4013	Business Strategy	3+0	MG1001
BA4092	Final Year Project – II	0+3	BA4091
MGxxxx	MG/AF/BA Elective – III	3+0	
		Total 12 +3	
		Total 131	

Note 1
100 credit hours and CGPA of 2.0 or more are required to register in Final Year Project – I.

Domain	Cr. Hrs
General Education	30
Disciplinary Major	80
Interdisciplinary	12
Field Experience	3
Capstone Project	6
Total	**131**

Bachelor of Science (Financial Technologies)

The BS program in financial technology is introduced to cater the needs of the market and new emerging specializations. The objectives of this program are as under;

- To develop the workforce that masters a wide range of knowledge and information on the basics of the financial services industry and FinTech, the ecosystem, and its main participants based on practical cases and world experience with refraction to the Pakistani market.
- To Develop practical knowledge of the applications of FinTech including Programming and Digital Business.
- To equip the specialist human resource with the programming language specifically designed for financial decision-making that improves the decision-making ability of the financial analyst. Furthermore, participants can apply the analytics tools in research and development.
- To make the workforce aware of the fast-emerging technological disruptions in the field of financial technology (FinTech) using industry professionals and subject matter experts.
- To develop the workforce that can analyze the effects of the development and change of trends relating to any participants in the ecosystem of the financial services market.

■ Career Opportunities

There are various career paths one may pursue after completing the FinTech program. In particular, careers in finance, technology, and entrepreneurship such as investment banking, wealth management, international finance, commercial banking, insurance, information technology, social entrepreneurship, etc. are vocations within the scope of this program. Graduates may work for FinTech startups as well which concentrate on alternative lending, cryptocurrency management, and trading, blockchain technologies, open banking, insurtech, Robo-advisement, machine learning, and data mining applications, and cybersecurity. Some may work for traditional financial services companies, which are in need of staff with technical skillsets to improve existing business practices and/or develop new processes related to technological innovations.

Fintech has impacted many fields like Banking, Insurance, Loans, Personal Finance, Electric Payments, Loans, Venture Capital, and Wealth Management, to name a few. Many new startups have started in the field and have taken on established players head-on, often creating a competitive environment that benefits consumers.

According to The Economic Times, careers associated with the FinTech sector are in great demand and demand often exceeds the current, available qualified applicants. The career options include, but not limited to, Blockchain developer, App developers, Financial or business analysts, Product manager, Compliance expert, Cybersecurity analyst, Data scientist, and Quantitative analyst.

Eligibility

- At least 60% marks in SSC (Matric) or an equivalent examination AND
- At least 50% marks in HSSC or an equivalent examination should have studied Mathematics.

Those who have taken the HSSC or an equivalent examination and are awaiting result are also to apply.

Selection Criteria

Admission based on NTS-NAT
- Selection is based on marks obtained in NTS NAT IE, NAT-ICS, NAT-ICOM, or NAT-IGS.
- Cut-off marks to be determined by the University.

Admission basis of SAT
A score of 1000 or more only for students who reside abroad.

Admission on the basis of NU Admission Test
- Matric marks 10%
- Intermediate marks 40%
- Score obtained in NU Admission Test / NTS-NAT 50%

Award of Degree

For the award of a BS FinTech degree, a student must have:
- Passed courses totaling at least 134 credit hours, including all those courses which have been specified as Core courses.
- Obtained a CGPA of at least 2.00

Tentative Study Plan
Bachelor of Science (Financial Technologies)

Code	Title	Cr. Hrs	Pre -Req
Semester – I			
CS1006	Computer Science in Business Problem	2+1	
AF1001	Fundamental of Accounting	3+0	
MG1003	Business Calculus - I	3+0	
MG1001	Fundamental of Management	3+0	
SS1016	English - I	2+1	
SS1017	Islamic Studies/Ethics	2+0	
	Total 15+2		
Semester – II			
AF1002	Financial Accounting	3+1	AF1001
MG1002	Marketing Management	3+0	
CS2016	Programming for Business	3+1	
MG1004	Business Calculus - II	3+0	MG1003
SS1006	English - II	3+1	SS1001
	Total 15+3		
Semester – III			
SS2xxx	Psychology/Sociology	2+0	
AF2004	Business Finance	3+0	AF1002, MT1002
CS2012	Introduction to Object Oriented Programming	3+1	
MG2008	Data Analysis for Business - I	3+1	
SS2002	Microeconomics	3+0	
SS2016	Community Services	2+0	
	Total 16+ 2		
Semester – IV			
MG2009	Data Analysis for Business - II	3+0	MG2008
MG3015	Environmental Science and Sustainability for Business	3+0	
SS2038	Critical Thinking	2+0	
CS2013	Introduction to Database Systems	3+1	CS2012
AF3001	Financial Management	3+1	AF2004
SS1015	Pakistan Studies	2+0	
	Total 16+2		
Semester – V			
SS2006	Macroeconomics	3+0	
MG3003	Basic Econometrics	3+1	MT2001
MG3012	Blockchain Technology for Business	3+0	
CS3011	Enterprise Information System	3+0	
MG4011	Entrepreneurship	3+0	MG1002
	Total 15+1		
Semester – VII			
CS3010	Web Programming	3+1	
AF3008	Business Research & Data Mining	3+1	
MG3002	Business Law	3+0	
AF3003	Financial Markets & Institution	3+0	SS2006
MG2010	Business Communication	3+0	
	Total 15+2		
Semester – VII I			
AF4011	Investment & Portfolio Analytics	3+0	
MGxxxx	MG/AF/BA Elective - I	3+0	
MGxxxx	MG/AF/BA Elective - II	3+0	
MG4052	Internship	3+0	
MG4091	Final Year Project - I	0+3	
	Total 12+3		
Semester – VIII			
AF4012	Financial Risk Analytics & Derivatives	3+0	
AF4013	Artificial Intelligence in Business Decision	3+0	
MGxxxx	MG/AF/BA Elective - III	3+0	
MGxxxx	MG/AF/BA Elective - IV	3+0	
MG4092	Final Year Project - II	0+3	MG4091
	Total 12+3		

		Total 134	

Domain	Cr. Hrs
General Education	30
Disciplinary Major	83
Interdisciplinary	12
Field Experience	3
Capstone Project	6
Total	**134**

Master of Business Administration

Program Objectives

The FAST MBA 2 years' program is designed for those who have completed 16 years of education. It delivers an in-depth understanding of the dynamics of management practices and a deeper appreciation of the implications of a rapidly globalizing work environment on businesses. It is designed with the flexibility to cater for the needs of those who have their undergraduate degree in business-related subjects, as well as for those who are coming from other disciplines and are making a conversion to the business and management discipline by doing an MBA. There are three distinguishing features of the FAST MBA program. First, in line with the vision and mission of the business school, the MBA program is designed to keep a balance between local, regional and global knowledge, through integration of local and international teaching material and experiential learning in the local industry and organizations. Second, in line with the culture and the traditions of FAST, the FAST MBA program focuses on technology integration in its courses. Third, the enhanced MBA program is designed to integrate cases in many of its level five courses, thus creating a balance between theoretical knowledge and its applications on the one hand, and enhancing the technical as well as the analytical skills of the students on the other hand.

Eligibility

- A degree earned from a recognized university after 16 years of education with at least 60% marks or a CGPA of at least 2.0 (on a scale of 4.0).

Note: Graduates with business degrees, equivalent to 16 years of education, such as Bachelors of Business Administration, BS Accounting and Finance, Masters in Commerce etc. may get up to 30 credit hours of exemptions, as permitted by the Higher Education Commission of Pakistan.

Selection Criteria

- Past Academic Record (Bachelor) 50%
- Score obtained in NU Admission Test/NTS-GAT (General) 50%

Award of Degree

For the award of MBA degree, a student must have:

- Passed courses totalling at least 60 credit hours (through exemptions and/or by studying a course), including all those courses which have been specified as core courses.
- Obtained a CGPA of at least 2.50.

■ Career Opportunities

MBA at FSM prepares students for management positions in general management, marketing, human resource management, finance, data analytics, textile management, and supply chain management, depending on the specialization offered at various campuses and subjects selected by the student.

Tentative Study Plan of MBA

Semester -I		
AF 4001 Accounting for Managers*	3+0	
MG 4004 Applied Statistics for Business*	3+0	
MG 4005 Business Economics for Managers*	3+0	
MG 4006 Management & Organizational Behaviour*	3+0	
MG 4010 Marketing*	3+0	
Total 15		

Semester -II		
AF 4009 Finance for Managers*	3+0	
BA 4004 Business Analytics*	3+0	
MG 4007 Managing Human Resources*	3+0	
MG 4009 Managerial Economics*	3+0	
MG 5017 Advanced Research Methods	3+0	
Total 15		

Semest er -III		
AF 5003 Financial Reporting & Analysis	3+0	
MG 5015 Strategic HR & Leadership	3+0	
MG 5026 Strategic Marketing	3+0	
Elective-I	3+0	
MG Elective-II/Dissertation-I	3+0 Note1	
Total 15		

Semester -IV		
AF 5001 Applied Corporate Finance	3+0	
MG 4002 Communication for Managers*	3+0	
MG 5024 Cases in Management	3+0	
Elective-III	3+0	
MG MBA Project/Dissertation-II	0+3	
Total 15		

*May be exempted for graduates with business degrees, equivalent to 16 years of education.

Note 1: 30 credits (including exemptions and the course of Advanced Research Methods) and CGPA of 2.5 or more

Note 2: Dissertation of 6 credit hours will be done by an individual student.

Master of Science (Management Sciences)

Program Overview

The MS in Management program is designed to develop the intellectual ability of curious minds through understanding the academic body of knowledge in the field of Management Sciences with specializations in Human Resource Management, Marketing and Finance. Aligned with the mission of the School, that is, to discover and impart culturally and globally relevant knowledge in management sciences, the program is designed to facilitate scholars uncover the classic and recent global and regional body of knowledge and prepare them to generate knowledge and solutions, particularly for local and regional businesses, industry and society. The program is essentially research-oriented and focuses on impactful academic research having practical applications in real life. It is primarily suitable for those who want to pursue a career in academia but is also appropriate for those who want to pursue professional careers where advanced data analysis and report writing skills are required. The program can also help candidates evaluate their aptitude, strengths and weaknesses for their candidacy in PhD programs.

The key learning outcomes of the MS program are:

- To develop the intellectual ability to think broadly and more deeply about the theory, beliefs and values at the root of business activities.
- To cultivate the desire, knowledge and ability to conduct research independently.
- To contribute towards the development of new ideas, theories and business models.

Eligibility

- A Bachelor's degree in a relevant subject, earned from a recognized university after a minimum of 16 years of education with at least 60 percent marks or a CGPA of at least 2.0/4.0 or equivalent. The students must have taken two courses in each of the main streams of Accounting, Finance, Marketing and Management. **AND**
- A minimum of 50% marks and at least 50 percentile rank in NTS in the NTS GAT-General OR at least 1,800 score (out of 2,400) in International GRE and at least 4 out of 6 in analytical writing. The scores should be valid at the time of admission.

Selection Criteria

- Past Academic Record (Bachelor) 50%
- Score obtained in NU Admission Test/NTS-GAT (General) 50%

■ Career Opportunities

The MS in Management program is an excellent step for those who aspire to have a career in academia or research-oriented organizations, and plan on pursuing a PhD. For those interested in management positions, the MS program develops more research, analytical and writing abilities than the MBA program. Graduates may take up positions in general management, marketing, human resource management or finance, depending on the subjects selected by the student.

Tentative Study Plan of MS (Management Sciences)

Semester -I		
AF 5006 Financial Theory & Research	3+0
MG 5016 Seminars in Management	3+0
MG 5017 Advanced Research Methods	3+0
	Total	9

Semester -II		
MG 5018 Research in Marketing	3+0
Elective-I	3+0
Elective-II	3+0
	Total	9+0

Semester -III		
MG 5091 MS Thesis-I	0+3
Elective-III	3+0
	Total	3+3

Semester -IV		
MG 5092 MS Thesis-II	0+3
Elective-IV	3+0
	Total	3+3

Note 1:
18 credits and CGPA of 2.5 or more

Note 2:
The electives can be taken from graduate level courses in the Faculty of Management Sciences with the recommendation of the supervisor.

Award of Degree

For the award of MS degree, a student must have:

- Passed courses totalling at least 30 credit hours, including all those courses which have been specified as core courses.
- Obtained a CGPA of at least 2.50.

Master of Science (Business Analytics)

Program Description

The MS in Business Analytics program aims to develop problem solving skills among the students through an in-depth understanding of business analytics. This program develops unique skills in the students to analyze, synthesize and visually present data related to numerous fields of management sciences i.e., marketing, management, HR, operations and finance. The graduates of this program will be equipped with in-demand skills and knowledge required for success in their professional careers. The program is a designed flexibly in a way that students with no background in business studies or programing can take admission in this program. However, depending on the undergraduate degree, the students will be required to study introductory courses.

The key learning outcomes of the MS Business Analytics program are to enable our graduates:

- To execute effective data management and data analysis for informed decision making in business settings.
- To demonstrate enhanced understanding of statistical and non-statistical techniques, and have expertise in using various software packages.
- To exhibit effective leadership and collaboration skills.
- To have knowledge of the ethical and legal issues in data gathering and analysis, and make ethically and culturally informed decisions in structured, unstructured or ambiguous situations.
- To communicate technical information to both technical and non-technical audiences in speech, in writing and graphically.
- To critically analyse, synthesize and solve complex unstructured business problems and suggest ways for business improvement, innovation and entrepreneurial action.

■ Career Opportunities

An MS Business Analytics program can significantly expand the graduates' career opportunities and increase their salary-earning potential. The graduates can find a number of pathways to choose from, such as business analytics consultants, operations analysts, people analysts, financial analysts, and market or consumer analysts.

Eligibility

- A degree earned from a recognized university after 16 years of education with at least 60% marks or a CGPA of at least 2.0 (on a scale of 4.0).

Selection Criteria

- Past Academic Record (Bachelor) 50%
- Score obtained in NU Admission Test/NTS-GAT (General) 50%

Award of Degree

For the award of Master of Science in Business Analytics degree, a student must have:

- Passed courses totalling at least 43 credit hours.
- Obtained CGPA of at least 2.50.

Tentative Study Plan of MS (Business Analytics)

Semester-I (Business)		
CS 1001 Programming Fundamentals	3+0
BA 5005 Applied Calculus for Business	3+0
CS 5059 Database System	3+0
MG 5017 Advanced Research Methods	3+0
Total 12+0	

Semester-I (Non-Business)		
AF 4010 Accounting and Finance for Managers	3+0
MG 4005 Business Economics for Managers	3+0
MG 5006 Marketing Analytics	3+0
MG 5017 Advanced Research Methods	3+0
Total 12+0	

Semester-II (Business)		
BA 5001 Inferential Statistics and Descriptive Modelling	3+0
BA 4001 Introduction to Decision Science	3+0
MG 3001 Legal and Ethical Issues in Business Analytics	3+0
Total 9+0	

Semester-II (Non-Business)		
BA 5001 Inferential Statistics and Descriptive Modelling	3+0
BA 4001 Introduction to Decision Science	3+0
MG 3001 Legal and Ethical Issues in Business Analytics	3+0
Total 9+0	

Semester-III (Business)		
BA 3001 Machine Learning for Business Analytics	3+1
MG 4016 Applied Econometrics	3+0
BA 4xxx Elective – I	3+0
BA 5091 Business Analytics Project/Dissertation - I	3+0
Total 12+1	

Semester-III (Non-Business)		
BA 3001 Machine Learning for Business Analytics	3+1
MG 4016 Applied Econometrics	3+0
BA 4xxx Elective – I	3+0
BA 5091 Business Analytics Project/Dissertation - I	3+0
Total 12+1	

Semester-IV (Business)		
BA 5002 Data Driven Decision Making and Optimization	3+0
BA 5003 Predictive Modelling	3+0
BA 5092 Business Analytics Project/Dissertation – II	3+0
Total 9+0	

Semester-IV (Business)		
BA 5002 Data Driven Decision Making and Optimization	3+0
BA 5003 Predictive Modelling	3+0
BA 5092 Business Analytics Project/Dissertation – II	3+0
Total 9+0	