IIM
AMRITSAR

Igniting Possibilities

POST GRADUATE CERTIFICATE PROGRAM

in

DATA SCIENCE AND BUSINESS ANALYTICS

BATCH 03
JUNE 2024 - APRIL 2025

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ABOUT
IIM AMRITSAR

Indian Institute of Management (IIM) Amritsar is the 15th IIM set up by the Ministry of Human Resource Development with the support of the Government of Punjab. Being located in Amritsar, the land of the Golden Temple and Wagah Border, the Institute benefits from the enriching experience offered by this holy city. The Institute is currently run in the Punjab Institute of Technology Building, 5 km away from the railway station and 10 km from the airport. Its permanent campus will be constructed about 7 km from the ISBT and 8.5 km from the railway station, making it easily accessible.

IIM Amritsar believes in collectively igniting possibilities. Towards fulfilling this objective, the institute plays a crucial role in human capital development by offering various programs like MBA, MBA Business Analytics, MBA HR, EMBA, PhD and various short – and long-term executive education programs. Owing to its indefatigable allegiance to providing exemplary education, IIM Amritsar has established itself as the vanguard of quality education and learning in a short span of time.

The Institute follows the same pedagogy as practiced by the other members of the prestigious IIM fraternity. With the state-of-the-art infrastructure, IIM Amritsar provides a nurturing environment for its students to learn and grow. IIM Amritsar also focuses on creating an entrepreneurial culture, where the students and faculty work together to create the best enterprising solutions. Besides getting to learn from qualified faculty and industry leaders, the students, here, learn by involving themselves in various club and committee activities. The tireless efforts of our students result in their winning many corporate and B-school competitions and, ultimately, their bagging promising career opportunities.

ABOUT PROGRAM

"We are surrounded by data, but starved for insights" - Jay Baer

Today, with the increasing adoption of digital technologies we have access to more data than we had at any point in human history. There is a huge volume of data that has been emanating from various digital sources including our cell phones, social media platforms, computers, financial institutions, and more. For companies to stay relevant and competitive in the 21st century, there is a need to transform this data into actionable insights. Over the past two decades, analytics has rapidly evolved from a simple number crunching exercise to a competitive strategy that is driving innovations across organizations. The explosive growth in the use of analytical methods in the recent years has been fuelled by three major developments – technological advancements leading to a tumultuous surge in data generation at both individual and organizational levels, methodological developments resulting in more effective computational approaches and faster algorithms for handling and exploring massive amount of data, and finally, exponential progress in computing power and storage capabilities.

According to a study by MicroStrategy, companies worldwide are using data to boost process and cost efficiency, drive strategy and change, and monitor and improve financial performance. It also says that over the next few years, the investments in analytics are predicted to accelerate for 71% of the global enterprises. However, as the requirement for skilled professionals in these fields soars, many companies continue to report the short supply of skilled employees. Quanthub has compiled data from major job services and reported a shortage of 250,000 in 2020 for skilled data scientists. In light of such trends, skills related to data science, machine learning, artificial intelligence, big data and operations research have become indispensable. And the need for relevant upskilling and specialization has become more important now than ever before.

The Post Graduate Certificate Program in Data Science & Business Analytics – Online (DSBA) from IIM Amritsar provides an avant-garde curriculum with a special focus on the required tools and techniques to formulate, analyze and find solutions to the problems faced by businesses in today's data-driven world. This rigorous 11-months program will be delivered during weekends and in the online mode offering flexibility to the working professionals who aspire to develop analytical thinking and decision-making skills while continuing with their jobs. The program also includes a 3-day Campus Immersion module at IIM Amritsar campus in which the participants will have the opportunity to meet and interact with the IIM faculty. The program is designed to help aspiring professionals build a robust foundation and advance their careers in the fields of data science and business analytics. The participants will develop basics to advanced understanding of these areas using hands-on training with in-demand tools and techniques, case studies, and capstone projects.

LEARNING OUTCOMES

- Handle structured and unstructured data and demonstrate data visualization and storytelling through data.
- Develop descriptive, predictive, and prescriptive analytical skills and make real-time, data-driven business decisions.
- Gain hands-on training with in-demand tools and data science languages such as Python, R, MySQL, Tableau, Power BI, SPSS and Spreadsheets, and appreciate their utility in solving contemporary business problems.
- Learn to implement AI and ML techniques in decision making.
- Understand Database Management, Big Data and Social Media Analytics and develop skills to analyze Big Data for inferences.
- Appreciate the use of Data Science and Analytics in the domains of Marketing Management, Operations Management, Retail Management, Supply Chain Management, Finance and Human Resource Management.

PROGRAM CURRICULUM

Module	Contents
Descriptive Analytics	- Introduction to Data and Statistics - Basic Statistical Measures - Probability and Random Variables - Discrete & Continuous Distributions - Hypothesis Testing - Analysis of Variance
Predictive Analytics and Forecasting	- Introduction to R and Exploration Data Analysis - Linear Regression - Multivariate Regression Techniques - Time Series Regression Analysis and Forecasting - Logistic Regression - Panel Data Regression
Artificial Intelligence, Machine Learning, and Deep Learning	- Introduction to AI and ML - Supervised Machine Learning - Unsupervised Machine Learning - Neural Network

Module	Contents
Database Management, Big Data and Social Media Analytics	- Database Management Systems - Big Data Management - Natural Language Processing (NLP) - Network Theory and Social Network Analysis - Data Visualization using Tableau and Power BI
Prescriptive Analytics	- Optimization for Complex Decisions - Linear, Integer, Goal and Non-Linear Programming - Decision Modelling using Spreadsheets - Sensitivity Analysis - Decision Making under Uncertainty and Risk - Simulation Modelling - Multi-criteria Decision Making
Application Module	- Storytelling using Data - Marketing Analytics and Digital Marketing - Operations and Supply Chain Analytics - Retail Analytics - Financial Analytics - HR Analytics

Capstone Projects: Participants will be required to take up practical projects so as to gain practical orientation of the analytical tools and techniques learned during the Program. The objective of the project is to give the participants an opportunity to synthesize their learnings from the program, while getting hands-on experience in applying the key principles in a practical context. The projects would provide the participants an opportunity to integrate theoretical and practical aspects and help them develop actionable solutions leading to leadership skills in data science and business analytics.

PROGRAM HIGHLIGHTS

- Post Graduate Certificate from IIM Amritsar.
- Live online sessions by eminent IIM Amritsar faculty members.
- Classes only on Sundays - offering flexibility to working professionals.
- 3-day campus immersion module - opportunity to meet and interact with peers and the IIM faculty.
- 11-months rigorous program with case-based interactive sessions, hands-on training with in-demand tools and techniques, periodic evaluations and capstone projects.
- Alumni status as per institute policy

PROGRAM COMPLETION REQUIREMENTS

- The program will have periodic evaluations comprising both objective and subjective assessments in the form of assignments, quizzes, practical projects, and presentations.
- IIM Amritsar awards program completion certificates to the course participants who successfully complete all the academic requirements and adhere to IIM Amritsar's academic and non academic policy requirements.

WHO SHOULD ATTEND?

Data has rightly been called the new Oil. With the advent of technology driven business practices, individuals trained and upskilled in Data Science and Business Analytics are the most sought-after candidates for various job roles across industries.

- Fresh graduates from any discipline having familiarity with high school mathematics and aspiring to build a career in data science, business analytics and related fields.
- Working professionals with work experience in any industry, having appreciation of high school mathematics and a keen interest towards enhancing their skills in data science and business analytics

ELIGIBILITY CRITERIA

- Bachelor's degree in any discipline with consistent academic performance.
- Familiarity with high-school mathematics and good oral and written communication skills
- Preference will be given to candidates with work experience after completion of Graduation

PROGRAM STRUCTURE

- Duration: 11 months with 175 contact hours
- Days: Classes on Sundays (2-4 sessions)
- Mode: Instructor led virtual classroom
- 3-day campus immersion at IIM Amritsar

APPLICATION PROCESS

- The application form for admission to the DSBA Program will be available at the institute's website.
- The deadline for submitting the completed application form is April 30, 2024.
- A non-refundable application fee of INR 1500/- + 18% GST has to be paid electronically at the time of submitting the application form.

IMPORTANT DATES

Application submission deadline	April 30, 2024
Registration by	May 13, 2024
Orientation and classes begin	June 02, 2024
Program ends	April 20, 2025

** Tentative and subject to change**

PROGRAM FEE

Application Fee	INR 1,500/- + 18% GST
Program Fee	INR 1,90,000/- + 18% GST

INSTALMENT SCHEDULE

Instalment 1: On or before May 13, 2024	INR 47500- + 18% GST
Instalment 2: On or before August 10, 2024	INR 47500- + 18% GST
Instalment 3: On or before October 10, 2024	INR 47500- + 18% GST
Instalment 4: On or before December 10, 2024	INR 47500- + 18% GST

Program Fee includes tuition, study materials and campus immersion.

SYSTEM REQUIREMENTS

- Processor: with Dual Core 2 Ghz or higher (i3/ i5/ i7 or AMD equivalent)
- RAM: 4 GB or higher
- OS: Either MacOS 10.7 or higher OR Windows 8 or higher
- Browser: IE 11+, Edge 12+, Firefox 27+, Chrome 30+
- Speakers and microphone: built-in or a USB plug-in or wireless Bluetooth
- Webcam: built-in or USB plug-in
- Zoom software client installed on your PC/ Laptop/ Mac

PROGRAM COORDINATOR

Dr Shuvabrata Chakraborty
Assistant Professor, Quantitative Methods & Operations Management

Dr Shuvabrata Chakraborty is an Assistant Professor in the Quantitative Methods and Operations Management area at the Indian Institute of Management Amritsar. He has completed his PhD from the Indian Institute of Management Lucknow. His research interest primarily lies in the application of Operations Research to solve problems related to facility location, logistics, and transportation.

Shuvabrata is a B.Tech. (Gold Medalist) in Mechanical Engineering from the National Institute of Technology Silchar and has worked as a piping engineer with Engineers India Limited (EIL) for nearly five years before pursuing PhD.

Igniting Possibilities

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