Kirti Verma, M. Sundarajan, Alka Gupta, and Adarsh Mangal

Mathematics for Business Management, Entrepreneurship, and Artificial Intelligence

Quantitative Approaches and Applications

DeepScience

Mathematics for Business Management, Entrepreneurship, and Artificial Intelligence: Quantitative Approaches and Applications

Kirti Verma

Department of Engineering Mathematics, Gyan Ganga Institute of Technology and Sciences, (GGITS), Jabalpur, India

M. Sundarajan

Department of Mathematics and Computer Science, Mizoram University, Aizawal, Mizoram, India

Alka Gupta

IIBS, Bengaluru, India

Adarsh Mangal

Department of Mathematics at Government Engineering College, Ajmer, India

DeepScience

Published, marketed, and distributed by:

Deep Science Publishing, 2025
USA | UK | India | Turkey
Reg. No. MH-33-0523625
www.deepscienceresearch.com
editor@deepscienceresearch.com
WhatsApp: +91 7977171947

ISBN: 978-93-7185-154-1

E-ISBN: 978-93-7185-945-5

https://doi.org/10.70593/978-93-7185-945-5

Citation: Verma, K., Sundarajan, M., Gupta, A., & Mangal, A. (2025). *Mathematics for Business Management, Entrepreneurship, and Artificial Intelligence: Quantitative Approaches and Applications*. Deep Science Publishing. https://doi.org/10.70593/978-93-7185-945-5

Preface

Mathematics is not only becoming a fundamental subject but day by day it is transforming into an active tool used to drive creativity, productivity and long term strategic planning in the dynamic world of business and entrepreneurship. With the increasing maturity of digital technology, programmable systems and global commercial environments, novel mathematical methods are increasingly important in forecasting business performance.

This book aspires to unveil this new trend of applying some advanced mathematical knowledge into the corporate strategies of our century. Mathematics is used in various fields that result in big decisions by entrepreneurs, from statistical methods and predictive models to optimization algorithms and financial predictions. The revolutionary impact of mathematical applications on risk management, the optimization of supply chains, market analysis or the creation of a startup is what this research should bring us to think about. This book bridging layers from abstract algebra results to practical applications in industry and this is the main contribution of the present study, which includes general proofs as well as case studies.

We emphasize recent developments, and the financial engineering, block chain technology, artificial intelligence (AI) and data analytics are few examples. This study also contributes to the opening-up of an interdisciplinary approach in which would-be entrepreneurs as well business managers are given the necessary grounding in mathematical thinking, while taking education to a next stage.

I thank all of the academics, practitioners and educators who have advanced this interdisciplinary subject and whose work motivates creativity in mathematics and business.

Kirti Verma
M. Sundarajan
Alka Gupta
Adarsh Mangal

Acknowledgement

We express my heartfelt gratitude to all those who have supported me throughout the completion of this work titled “Mathematics for Business Management, Entrepreneurship, and Artificial Intelligence: Quantitative Approaches and Applications."

First and foremost, I would like to thank the Almighty for granting me the strength, patience, and perseverance to carry out this research with dedication.

I extend my sincere thanks to my mentor and guide Dr. Rajneet Jain sir, whose constant encouragement, insightful suggestions, and valuable feedback have been instrumental in shaping this work. Their expertise and dedication towards academic excellence have deeply inspired me.

I am also grateful to the faculty members of GGITS for creating a research-conducive environment and for their constant support and motivation during the course of this study.

My heartfelt thanks to my family and friends for their unwavering support, love, and understanding throughout this journey. Their encouragement has been a constant source of strength.

Last but not least, I acknowledge with appreciation all the authors, researchers, and academicians whose work has contributed to the body of knowledge in this field and served as a valuable foundation for my research.

This study would not have been possible without the support of each individual mentioned above.

Table of Contents