Ahmed Amin

Assistant Professor

Personal details

Ahmed Amin

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+905454453309

Egyptian

+905454453309

Personal Skills

- Effective communication
- Working in a team
- Flexibility
- Creativity and Innovation
- Problem Solving
- Stimulus

Management Skills

- Management
- Strategic Planning
- Quality Management
- Time Management

Summary

I am Ahmed Amin. I got my doctoral (PhD) degree from the National University of Malaysia in July 2023. Currently, I am teaching mathematics and statistics at Axcel Business College, UK. Throughout my career, I have worked with various universities as a lecturer and a teaching assistant for mathematics and statistics. Moreover, I have published more than 30 papers in mathematics and serve as a reviewer for several international journals. Additionally, I have developed strong management skills during my university tenure and gained experience in quality assurance. Furthermore, I hold several diplomas in strategic planning and management.

Education

Doctorate (PhD) **Feb 2021 - Jul 2023**

Universiti Kebangsaan Malaysia, (UKM), Selangor, Malaysia

Ph.D. in Mathematics, (Numerical Analysis) - National University of Malaysia, Selangor, Malaysia.

Master (M.Sc) **Jan 2015 - Dec 2016**

Beni-Suef, Egypt

MSc in Mathematics - Numerical Analysis - Beni-Suef University, Beni Suef, Egypt.

Bachelor **Jun 2007**

Al Azhar University, Cairo, Egypt

Bachelor of mathematics and computer science, Al Azhar University, Cairo, Egypt.

Education Diploma **Sep 2014 - May 2015**

Al Azhar University, Cairo, Egypt

I earned an education diploma at Al-Azhar University, during which I studied subjects like teaching methods, psychology, growth, individual differences, curriculum, pedagogical thinking, and learning systems.

Employment

Ass. professor **Sep 2023 - Present**

Axcel Business college UK /Acxel International Academy

I am teaching mathematics and statistics at Business Administration, Computer Science and Information Technology department, Axcel Business college UK which has an association with the University of Derby in Britain.

Lecturer (Instructor) **Jul 2021 - Aug 2023**

University of the people, US

I taught mathematics and statistics (Linear algebra, statistics, calculus, and

Teaching Skills

- Communicate information
- Research work
- Technology
- Presentation Skills

Languages

- Arabic
- English
- Turkish

Hobbies

- Reading
- Sports
- Training

Subjects taught

- Calculus (Math) 1
- Calculus (Math) 2
- Calculus (Math) 3
- Linear Algebra
- Numerical Analysis
- Discrete Mathematics
- Special Functions
- Differential equations
- Maths for Computing
- Calculus for computing

Reviewer in journals

discrete mathematics) in the Faculty of Information Technology, Computer Science, and Business Administration at the University of People.

Lecturer **Sep 2016 - Aug 2018**

Canadian International College, Cario, Egypt.

I taught many subjects such as Calculus (Math) 1, 2, 3, differential equations, linear algebra, special functions, statistics and probabilities, and mechanics at the Canadian University's Higher Institute of Engineering, Sheikh Zayed. Additionally, I worked in administration at the university in the Quality Assurance and the University Control Unit.

Demonstrator **Sep 2015 - Aug 2016**

Canadian International College, Cairo, Egypt.

I taught many subjects such as Calculus (Math) 1, 2, 3, differential equations, linear algebra, special functions, statistics, probabilities, and mechanics. Moreover, I worked in the administrative field of the university in the Quality Assurance and the University Control Unit.

Teaching assistant **Sep 2012 - Aug 2014**

Faculty of Industrial Education in Beni Suef University, Beni Suef, Egypt.

I taught mathematics and statistics subjects at the Faculty of Industrial Education, Beni Suef University.

Additional Academic Activities

Quality Unit **Sep 2015 - Aug 2018**

Canadian international college, Cairo, Egypt.

I worked on the quality standards, such as the faculty member standard, the scientific research standard, and the university strategic plan standard, as an assistant to the vice dean of engineering at this unit. The Canadian Higher Institute of Engineering was the first of all institutes in Cairo to be accredited.

University Control Unit **Sep 2015 - Aug 2020**

Canadian international college, Cario, Egypt.

I worked in the university control unit at the Higher Institute of Engineering, and I was responsible for uploading the data on the university's system.

Training courses

Ethics of scientific research **Nov 2015**

I got a training course provided by the Center for Capacity Development and Leadership at the University of Helwan, focusing on scientific research ethics at the Canadian Higher Institute of Engineering.

Communication skills **May 2014**

Course presented by Beni Suef University for Faculty Development, Egypt.

Examination and Student Evaluation Systems **Nov 2015**

A training course provided by the Centre for Capacity Development and

- Communications in Nonlinear Science and Numerical Simulation.
- Journal of Computational and Applied Mathematics.
- Alexandria Engineering Journal.
- Mathematical Problems in Engineering
- Computer Modeling in Engineering and Sciences.
- African Journal of Mathematics and Computer Science Research.
- SN Applied Sciences.
- Journal of Mathematics.
- PLOS ONE.
- Control and Optimization.
- International Journal of Applied and Computational Mathematics .

Diplomas

Trainee Training Diploma (Trainer qualification)
Mar 2013
I got the Trainee Training Diploma, which is a dedicated program from Cairo University and Glory Academy for Human Resources Development to qualify trainers in human development. The course lasted for a full month at a rate of 70 training hours. Cairo, Egypt.

Diploma in Business Administration
Nov 2016
I obtained a diploma in business management dealing with strategic and operational planning, as well as organizational skills, marketing management, financial management, human resources management, and relationship and

Leadership at the University of Helwan aimed at focusing on examination and student evaluation systems at the Canadian Higher Institute of Engineering.

Quality Management Courses **2016**
Specialized courses in total quality management and how to manage work standards within higher education, including the faculty member standard, curriculum standard, student standard, scientific research standard, leadership standard, strategic plan standard, and the university's relationship with the local community.

Teaching and Learning Environment **Nov 2023**
A training course provided by Axcel Business College UK aimed at focusing on teaching and learning environments is designed to explore the principles and practices that create effective educational settings.

Assessment of learning: Formative feedback **Nov 2023**
A training course provided by Axcel Business College UK aimed at focusing on assessment of learning: formative feedback is designed to provide ongoing feedback and support to students during their learning journey, helping them identify strengths and areas for improvement, and promoting active engagement, self-reflection, and continuous improvement in student learning outcomes.

Assessment of learning: Summative feedback **Jan 2024**
A training course provided by Axcel Business College UK aimed at focusing on assessment of learning: Summative feedback is designed to provide a summary of students' overall progress and attainment of learning objectives, often in the form of grades or scores, gauge the effectiveness of teaching and learning strategies, and inform future instructional decisions.

Main Research Interests

- Numerical analysis and scientific calculations.
- spectral methods and their applications.
- Nonlinear differential equations with fractional orders.
- Integral equations, fractional integral equations, and orthogonal polynomials.
- Stochastic fractional integral equations.
- Stochastic fractional differential equations.
- Variable-order and distributed-order fractional differential and integral equation.

Research information

Number of published research: 30
H-Index: 13

communications management from Ain Shams University, Cairo, Egypt.

Diploma in Project Management
Aug 2017
I obtained the diploma of PMP, which contained Project Integration Management, Project Scope Management, Project Time Management, Project Planning Department, Project Quality Management, Project Cost Management, Project Communications Management, Human Resources Management, Project Risk Management, and Supply Management. It was held by Glory Academy, Cairo, in cooperation with the Institute of Planning and Follow-up, Egypt.

Diploma of International Strategic Planning
Jan 2020
I got the diploma of the state's strategic planning, which addressed strategic planning for scientific production, cultural and social strategic planning, political strategic planning, economic strategic planning, technical strategic planning, strategic planning for education, and strategic planning for external international relations, from Sabah al-Din Al-Qaida University and the Strategic Thinking Group, Turkey.

Diploma in Government Administration
Dec 2023
I obtained an A diploma specializing in the development of government political policies aimed at a series of curricula such as public policies, administrative policies, international strategic planning, financial policies, and comparative policy for a period of 6 months in the Sharq Academic, Istanbul, Turkey.

Google scholar link

WOS-index

SCOPUS-index

Topics of teaching

Calculus 1 (Mathematics 1)
Functions and Graphs: Polynomial, Rational, Exponential, Logarithm and Trigonometric Functions, Limits and Continuity - Limit of a function, Limit laws, Continuity/Discontinuity of a function, Derivative of a function, Derivative rules of Algebraic, and Trigonometric Functions including Power, Sum, Difference, Product, and Quotient rules, The Chain Rule and Implicit Differentiation, Derivatives of Inverse Functions, Exponential and Logarithmic Functions, Applications of Derivatives, Extreme Values of Functions, and the Mean Value Theorem, Newton's Method, Antiderivative, and L'Hopital's Rule, Indefinite Integrals, Definite Integrals, and Fundamental Theorem of Calculus.

Calculus 2 (Mathematics 2)
Integral, Integration Techniques, Definite Integral, Application on definite integral, Improper Integrals, Arc Length, Surface Area, Parametric and Polar, Series and Sequences, Taylor Series, Maclaurin Series, Vectors, Dot Product, Cross Product, Partial Derivatives, Application of Partial Derivatives, Multiple Integrals, Line Integrals, Surface Integrals.

Calculus 3 (Differential Equations)
First and higher order differential Equations, Laplace transform and inverse Laplace transform, solving differential equations using Laplace transform, solving system of differential equation, Fourier transform, partial differential equations and their Applications, Vector Analysis, Complex variables, Function of complex variables, complex Mapping, Complex series, Complex integral, Z-transform, solving system of algebraic equations numerically, interpolation, Numerical solution of differential equation.

Linear Algebraic
Systems of Linear Equations, Gaussian Elimination and Gauss-Jordan Elimination, Operations with Matrices, Properties of Matrix Operations, The Inverse of a Matrix, Applications of Matrix Operations, Determinants, Applications of Determinants, Vector Spaces, Spanning Sets and Linear Independent, Applications of Vector Spaces, Inner Product Spaces, Applications of Inner Product Spaces, Linear Transformations, Matrices for Linear Transformations, Eigenvalues and Eigenvectors, Diagonalization,

Numerical Analysis
Solution of Algebraic Equation, Bisection algorithm, Newton–Raphson Method, Fixed Point Iteration Method, Gaussian elimination, Gauss Jordan elimination, Jacobi's iteration method, Gauss-Seidel algorithm, LU

factorization of matrices, Numerical Integration, Trapezoidal Rule, Simpson's 1/3-Rule and Simpson's 3/8-Rule, Numerical differentiation, Finite Difference method, Second Order Runge-Kutta Method, Fourth Order Runge-Kutta method.

Discrete Mathematics

Set Theory and Basics of Counting, Functions and Sequences, Combinatorics, Recursion and Solutions of Recurrence Relation, Introduction to Logic, Partial Ordering and Mathematical Induction, Graph Theory, Introduction to Algebraic Structures.

Maths for Computing

Number theory: Converting between number bases (denary, binary, octal, duodecimal and hexadecimal). Prime numbers, Pythagorean triples and Mersenne primes. Greatest common divisors and least common multiples. Modular arithmetic operations. Sequences and series: Expressing a sequence recursively. Arithmetic and geometric progression theory and application. Summation of series and the sum to infinity- Geometry: Cartesian co-ordinate systems in two dimensions. Representing lines and simple shapes using co-ordinates. The co-ordinate system used in programming output device. Vectors: Introducing vector concepts. Cartesian and polar representations of a vector. Scaling shapes described by vector co-ordinates.

Calculus for computing

Evaluate problems concerning differential and integral calculus Differential calculus: Introduction to methods for differentiating mathematical functions. The use of stationary points to determine maxima and minima. Using differentiation to assess rate of change in a quantity. Integral calculus: Introducing definite and indefinite integration for known functions. Using integration to determine the area under a curve. Formulating models of exponential growth and decay using integration methods (by parts - Substitution - partial fractional) .

Teaching Statement

1. 2012 (Calculus I- Faculty of Industrial Education)
2. 2012 (Statistics and Probability Theory-Faculty of Industrial Education)
3. 2012 (Statistics and Probability Theory- Faculty of Industrial Education)
4. 2012 (Calculus I - Faculty of Industrial Education)
5. 2013 (Statistics and Probability Theory- Faculty of Industrial Education)
6. 2013 (Calculus I - Faculty of Industrial Education)
7. 2013 (Statistics and Probability Theory - Faculty of Industrial Education)
8. 2014 (Calculus I- Faculty of Industrial Education
9. 2014 (Statistics and Probability Theory - Faculty of Industrial Education)

10. 2014 (Calculus I - Canadian University)
11. 2015 (Calculus II - Canadian University)
12. 2015 (Calculus III - Canadian University)
13. 2015 (Statistics and Probability Theory - Canadian University)
14. 2015 (Numerical Analysis - Canadian University)
15. 2016 (Calculus II - Canadian University)
16. 2016 (Calculus III - Canadian University)
17. 2016 (Statistics and Probability Theory - Canadian University)
18. 2016 (Calculus I - Canadian University)
19. 2017 (Special function - Canadian University)
20. 2017 (Calculus II - Canadian University)
21. 2017 (Mechanics - Canadian University)
22. 2017 (Calculus III- Canadian University)
23. 2017 (Numerical Analysis - Canadian University)
24. 2017 (Special function - Canadian University)
25. 2018 (Pre-Calculus - Canadian University)
26. 2018 (Calculus III - Canadian University)
27. 2018 (Statistics and Probability Theory - Canadian University)
28. 2018 (Numerical Analysis - Canadian University)
29. 2018 (Calculus I - University of the people)
30. 2021 (Linear Algebraic - University of the people)
31. 2021 (Discrete Mathematics - University of the people)
32. 2021 (Statistics and Probability Theory - University of the people)
33. 2021 (Calculus I - University of the people)
34. 2022 (Linear Algebraic - University of the people)
35. 2022 (Discrete Mathematics - University of the people)
36. 2022 (Statistics and Probability Theory - University of the people)
37. 2022 (Discrete Mathematics -University of the people)
38. 2023 (Calculus I -University of the people)
39. 2023 (Statistics and Probability Theory - University of the people)
40. 2023 (Linear Algebraic - University of the people)
41. 2023 (Calculus I - University of the people)
42. 2024 (Statistics and Probability Theory - University of the people)
43. 2023 (Discrete Mathematics - Axcel Business college UK)
44. 2023 (Calculus for computing - Axcel Business college UK)
45. 2024 (Maths for Computing - Axcel Business college UK
46. 2024 (Introduction for Probability - Axcel Business college UK)

Journal Articles

1. **A. Amin**, M. Abdelkawy, Romanovski-Jacobi spectral collocation schemes for distributed order differential problems. has been submitted for publication. **2024**
2. **A. Amin**, M. Abdelkawy, Romanovski-Jacobi spectral collocation schemes for distributed order fractional convection-diffusion equations. has been submitted for publication. **2024**
3. **A. Amin**, M. Abdelkawy, Abdel-Haleem Abdel-Aty, Fractional order spectral collocation schemes for distributed order fractional sine and klein–gordon differential equations. has been submitted for publication. **2024**

Mohamed ,Aty-Haleem Abdel-Abdel ,**Ahmed Amin** , A Tedjani .4 Abdelkawy , Mona Mahmoud, Legendre spectral collocation method for solving nonlinear fractional Fredholm integro-differential equations with convergence analysis, AIMS Mathematics, **2024**.
A. Amin, M. Abdelkawy, E. Soluma, and M. M. Babatin, “A space - .5 time spectral approximation for solving two dimensional variable-order fractional convection-diffusion equations with nonsmooth solutions,” International Journal of Modern Physics C, **2024**.
A. Amin, M. Abdelkawy, A. Lopes, A. Alluhaybi, and I. Hashim, .6 “Legendre-gauss-lobatto collocation method for solving multi-dimensional systems of mixed volterra-fredholm integral equations,” AIMS Mathematics, **2023**.
A. Amin, M. Abdelkawy, E. Soluma, and I. AL-Dayel, “A spectral .7 collocation method for solving the non-linear distributed-order fractional bagley–torvik differential equation,” Fractal and Fractional, .**2023**
A. Z. Amin, A. M. Lopes, and I. Hashim, “A space-time spectral .8 collocation method for solving the variable-order fractional fokker-planck equation,” J. Appl. Anal. Comput, vol. 13, pp. 969–985, **2023**.
A. Amin, M. Abdelkawy, and I. Hashim, “A space-time spectral .9 approximation for solving nonlinear variable-order fractional convection-diffusion equations with nonsmooth solutions,” International Journal of Modern Physics C, vol. 34, no. 03, p. 2 350 041, **2023**.
A. Amin, A. Amin, M. Abdelkawy, A. Alluhaybi, and I. Hashim, .10 “Spectral technique with convergence analysis for solving one and two-dimensional mixed volterra-fredholm integral equation,” Plos one, vol. 18, no. 5, e0283746, **2023**.
M. A. Abdelkawy, **A. Z. Amin**, A. M. Lopes, I. Hashim, and M. M. .11 Babatin, “Shifted fractional-order jacobi collocation method for solving variable-order fractional integro-differential equation with weakly singular kernel,” Fractal and Fractional, vol. 6, no. 1, p. 19, **2022**.
M. A. Abdelkawy, **A. Amin**, and A. M. Lopes, “Fractional order shifted .12 legendre collocation method for solving non-linear variable-order fractional fredholm integro-differential equations,” Computational and Applied Mathematics, vol. 41, no. 1, p. 2, **2022**.
A. Z. Amin, A. M. Lopes, and I. Hashim, “A chebyshev collocation .13 method for solving the non-linear variable-order fractional bagley–torvik differential equation,” International Journal of Nonlinear Sciences and Numerical Simulation, **2022**.
A. Z. Amin, M. A. Zaky, A. S. Hendy, I. Hashim, and A. Aldraiweesh, .14 “High-order multivariate spectral algorithms for high-dimensional nonlinear weakly singular integral equations with delay,” Mathematics, vol. 10, no. 17, p. 3065, **2022**.
E. Doha, M. Abdelkawy, **A. Amin**, and A. M. Lopes, “Shifted fractional .15 legendre spectral collocation technique for solving fractional stochastic volterra integro-differential equations,” Engineering with Computers, pp. 1–11, **2022**.
M. A. Abdelkawy, **A. Z. Amin**, M. M. Babatin, A. S. Alnahdi, M. A. .16 Zaky, and R. M. Hafez, “Jacobi spectral collocation technique for time-fractional inverse heat equations,” Fractal and Fractional, vol. 5, no. 3, p. 115, 2021.

E. H. Doha, M. A. Abdelkawy, **A. Z. Amin**, and A. M. Lopes, .17 “Numerical solutions for variable-order fractional gross pitaevskii equation with two spectral collocation approaches,” International Journal of Nonlinear Sciences and Numerical Simulation, 2021.
E. Doha, M. Abdelkawy, **A. Amin**, and D. Baleanu, “Approximate .18 solutions for solving nonlinear variable-order fractional Riccati differential equations,” Nonlinear Analysis: Modelling and Control, vol. 24, no. 2, 2019.
E. H. Doha, M. A. Abdelkawy, **A. Z. Amin**, and D. Baleanu, “Shifted .19 jacobi spectral collocation method with convergence analysis for solving integro-differential equations and system of integro-differential equations,” Nonlinear Analysis: Modelling and Control, vol. 24, no. 3, pp. 332–352, 2019.
E. H. Doha, M. A. Abdelkawy, **A. Amin**, and A. M. Lopes, “Shifted .20 jacobi–gauss-collocation with convergence analysis for fractional integro-differential equations,” Communications in Nonlinear Science and Numerical Simulation, vol. 72, pp. 342–359, 2019.
A. H. Bhrawy, M. A. Abdelkawy, D. Baleanu, and **A. Z. Amin**, “A .21 spectral technique for solving two-dimensional fractional integral equations with weakly singular kernel,” Hacettepe Journal of Mathematics and Statistics, vol. 47, no. 3, pp. 553-566, 2018.
E. Doha, M. Abdelkawy, **A. Amin**, and D. Baleanu, “Spectral technique .22 for solving variable-order fractional volterra integro-differential equations,” Numerical Methods for Partial Differential Equations, vol. 34, no. 5, pp. 1659–1677, 2018.
E. Doha, M. Abdelkawy, **A. Amin**, and A. M. Lopes, “A space–time .23 spectral approximation for solving nonlinear variable-order fractional sine and klein–gordon differential equations,” Computational and Applied Mathematics, vol. 37, pp. 6212–6229, 2018.
E. Doha, M. Abdelkawy, **A. Amin**, and A. M. Lopes, “On spectral .24 methods for solving variable-order fractional integro differential equations,” Computational and Applied Mathematics, vol. 37, pp. .2018 ,3937–3950
A. El-Kalaawy, E. Doha, S. Ezz-Eldien, **A. Amin** et al., “A .25 computationally efficient method for a class of fractional variational and optimal control problems using fractional gegenbauer functions,” Rom. Rep. Phys, vol. 70, no. 2, p. 90 109, 2018.
M. A. Abdelkawy, **A. Z. Amin**, A. H. Bhrawy, J. A. Tenreiro Machado, .26 and A. M. Lopes, “Jacobi collocation approximation for solving multi-dimensional volterra integral equations,” International Journal of Nonlinear Sciences and Numerical Simulation, vol. 18, no. 5, pp. .2017 ,411–425
M. A. Abdelkawy, E. H. Doha, A. H. Bhrawy, and **A. Amin**, “Efficient .27 pseudospectral scheme for 3d integral equations,” Proc. Rom. Acad., Ser. A, Math. Phys. Tech. Sci. Inf. Sci, vol. 18, no. 3, pp. 199–206, .2017
D. Baleanu, A. El-Kalaawy, **A. Amin**, et al., “Composite bernoulli- .28 laguerre collocation method for a class of hyperbolic telegraph-type equations,” 2017.
A. Bhrawy, M. Abdelkawy, J. T. Machado, and **A. Amin**, .29 “Legendre–gauss–lobatto collocation method for solving multi-

dimensional fredholm integral equations," Comput. Math. Appl, vol. 4, pp. 1–13, 2016.

.30 M. A. Abdelkawy, S. S. Ezz-Eldien, and **A. Z. Amin**, "A jacobi spectral collocation scheme for solving abel's integral equations," Progr. Fract. Differ. Appl, vol. 1, no. 3, pp. 187–200, 2015.

Conference Proceedings

1. **A. Amin** and I. Hashim, "Aspectral collocation method with convergence analysis for solving nonlinear fractional fredholm integro-differential equations," in International Conference on Mathematics and Its Applications in Science and Engineering (ICMASE 2022) 4-7 July 2022, Technical University of Civil Engineering, Bucharest, Romania, **2022**, p. 6.

A Amin

References

References available upon request.