

Curriculum Vitae

Samia Saleem Ahmad Bushnaq

Assistant Professor, Applied Mathematics

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Objectives:

Seeking for a position that requires a hardworking, quality oriented, fast learning and excellent communication skills that will enhance both my professional and personal skills.

Educational Qualifications:

2012: PhD Doctoral degree in Applied Mathematics at University of Jordan in Jordan with an average (3.63 out of 4), Rating: Very Good.
Thesis Title: The Reproducing Kernel Hilbert Space Method: Application to Integro-Differential Equations of Fractional Order.
Supervisor: Dr. Shaher Al-Momani, Prof.

2007: MA Master degree in Applied Functional Mathematics at University of Jordan in Jordan with an average (3.35 out of 4), Rating: Very Good.
Thesis Title: Identification Problem for Abstract Ordinary Differential Equations.
Supervisor: Dr. Mohammad Al-Horani.

1996: BA Degree of Bachelor of Science with a major in Mathematics and a minor in Finance with an average 70.6%, Rating: Good.

Work Experiences:

2011 – till now: Teaching at Princes Sumaya University for Technology.

2008 – 2010 : Teaching at the World Islamic Sciences and Education University

2007 – 2008 : Teaching at Princes Sumaya University for Technology as Part-time Lecturer.

1999 – 2007 : Teaching at Ministry of Education in Jordan.

Publications:

- 1) **Bushnaq S.**, Momani S. and Zhou Y., *A Reproducing Kernel Hilbert Space Method for Solving Integro-Differential Equations of Fractional Order*, Journal of Optimization Theory and Applications, Volume 156, Issue 1, 2013 pp. 96-105.
- 2) **Bushnaq S.**, Maayah B., Momani S. and Alsaedi A., *A Reproducing Kernel Hilbert Space Method for Solving Systems of Fractional Integrodifferential Equations*, Abstract and Applied Analysis, Volume 2014, Article ID 103016, 2014, pp. 1-6.
- 3) Maayah B., **Bushnaq S.**, Momani S. and Abu Arqub O., *Iterative Multistep Reproducing Kernel Hilbert Space Method for Solving Strongly Nonlinear Oscillators*, Advances in Mathematical Physics, Volume 2014, Article ID 758195, 2014, pp. 1-7.
- 4) **Bushnaq S.**, Maayah B. and Ahmad M., *Reproducing Kernel Hilbert Space Method for Solving Fredholm Integro-Differential Equations of Fractional Order*, Italian Journal of Pure and Applied Mathematics, Volume 36, 2016, pp. 307-318.
- 5) Maayah B., **Bushnaq S.**, Ahmad M. and Momani S., *Computational Method for Solving Nonlinear Voltera Integro-Differential Equations*, Journal of Computational and Theoretical Nanoscience, Volume 13, 2016, pp. 7802–7806.
- 6) **Bushnaq S.**, Maayah B., Momani S., Abu Arqub O., Al-Smadi M. and Alsaedi A., *Analytical Simulation of Singular Second-Order, Three Points BVPs for Fredholm Operator using Computational Kernel Algorithm*, Journal of Computational and Theoretical Nanoscience, Volume 13, 2016, pp. 7816–7824.
- 7) **Bushnaq S.**, Maayah B. and AlHabees A., *Application of Multistep Reproducing kernel Hilbert Space Method for Solving Giving Up Smoking Model*, International Journal of Pure and Applied Mathematics IJPAM, Volume 109, Issue 2, 2016, pp. 311-324.
- 8) AlHabees A., Maayah B. and **Bushnaq S.**, *Solving Fractional Proportional Delay Integro Differential Equations of First Order by Reproducing Kernel Hilbert Space Method*, Global Journal of Pure and Applied Mathematics, Volume 12, Issue 4, 2016, pp. 2499-3516.
- 9) Shah K. and **Bushnaq S.**, *Numerical Treatment of Fractional Endemic Disease Model via Laplace Adomian Decomposition Method*, Journal of Science and Arts, Volume 39, Issue 2, 2017, pp. 357-268.
- 10) Ali S., **Bushnaq S.**, Shah K. and Arif M., *Numerical Treatment of Fractional Order Cauchy Reaction Diffusion Equations*, Chaos, Solitons & Fractals, Volume 103, 2017, pp. 578- 587.
- 11) **Bushnaq S.**, Hussain W. and Shah K., *On Nonlinear Implicit Fractional Differential Equations without Compactness*, Journal of Nonlinear Sciences and Applications (JNSA), Volume 10, 2017, pp. 5528-5539.

- 12) Maayah B., **Bushnaq S.**, Hasan S. and Momani S., *Numerical Solution of Fractional Fredholm Integro-Differential Equations Using Fuzzy Transform Method*, International Journal of Pure and Applied Mathematics, accepted, 2017.
- 13) Maayah B., **Bushnaq S.**, Alsaedi A. and Momani S., *An Efficient Numerical Method for Solving Chaotic and Non-Chaotic Systems*, Journal of Ramanujan Mathematical Society, Volume 33, Issue 3, 2018, pp. 219-231.
- 14) **Bushnaq S.**, Khan S.A, Shah K. and Zaman G., *Existence Theory of HIV-1 Infection Model by Using Arbitrary Order Derivative of Without Singular Kernel Type*, Journal of Mathematical Analysis, Volume 9, Issue 1, 2018, pp. 16-28.
- 15) Khan H., Arif M., Mohyud-Din S.T and **Bushnaq S.**, *Numerical Solutions to Systems of Fractional Volterra Integro Differential Equations, Using Chebyshev Wavelet Method*, Journal of Taibah University for Science, <https://doi.org/10.1080/16583655.2018.1510149>, Volume 12, Issue 5, 2018, pp. 584-591.
- 16) **Bushnaq S.**, Ali S., Shah K. and Arif M., *Exact Solution to Nonlinear Biological Population Model with Fractional Order*, Thermal Science, <https://doi.org/10.2298/TSCI171127035B>, Volume 22, Issue Supp. 1, 2018, pp. S317-S327.
- 17) **Bushnaq S.**, Khan S.A., Shah K. and Gul Zaman G., *Mathematical Analysis of HIV/AIDS Infection Model with Caputo-Fabrizio Fractional Derivative*, Cogent Mathematics, Volume 5, 2018, pp. 1-12.
- 18) Shah K., Ali A. and **Bushnaq S.**, *Hyers-Ulam stability Analysis to Implicit Cauchy Problem of Fractional Differential Equations with Impulsive Condition*, Mathematical Methods in Applied Sciences, <https://doi.org/10.1002/mma.5292>, Volume 41, Issue 17, 2018, pp. 8329-8343.
- 19) Alsaedi A., Yousef F., **Bushnaq S.** and Momani S., *New Styles of Periodic Solutions of the Classical Six-Body Problem*, Mathematics and Computers in Simulation, Volume 159, <https://doi.org/10.1016/j.matcom.2018.11.017>, 2019, pp. 183-196.
- 20) **Bushnaq S.**, Ali S., Shah K. and Arif M., *Approximate solutions to nonlinear fractional order partial differential equations arising in ion-acoustic waves*, AIMS Mathematics, Volume 4(3), <https://doi.org/10.3934/math.2019.3.721>, 2019, pp. 721-739.
- 21) Fiza M., Chohan F., Ullaha H., Islam S. and **Bushnaq S.**, *An extension of the optimal homotopy asymptotic method with applications to nonlinear coupled partial differential equations*, Journal of Mathematics and Computer Science, Volume 19(4), 2019, pp. 218-229.
- 22) Nawaz R., Farid S. and **Bushnaq S.**, *Applications of New Iterative Method to Fractional Non Linear Coupled ITO System*, Boletim da Sociedade Paranaense de Matematica (BSPM), Volume 40, <http://dx.doi.org/10.5269/bspm.47787>, 2022.
- 22) Zada L., Nawaz R. and **Bushnaq S.**, *An efficient Approach for Solution of Fractional Order Differential-Difference Equations Arising in Nanotechnology*, Applied Mathematics E-Notes, Volume 20, 2020, pp. 297-307.

- 24) Khan H., Shah R., Arif M. and **Bushnaq S.**, *The Chebyshev Wavelet Method (CWM) for the Numerical Solution of Fractional HIV Infection of CD4+ T Cells Model*, International Journal of Applied and Computational Mathematics, Volume 6(34), <https://doi.org/10.1007/s40819-020-0786-9>, 2020.
- 25) **Bushnaq S.**, Ullah A., Ullah Z. and Shah K., *Solution of Fuzzy Singular Integral Equation of Abel's Type Kernel Using Laplace Adomian Decomposition Method*, Advances in Difference Equations, Article number 156, <https://doi.org/10.1186/s13662-020-02623-y>, 2020.
- 26) Mohyud-Din S.T., Khan H., Arif M. and **Bushnaq S.**, *Chebyshev Wavelet Method (CWM) for the Numerical Solutions of Fractional Boundary Value Problems*, Italian Journal of Pure and Applied Mathematics, Volume 43, 2020, pp. 242-255.
- 27) Ali A., Ahmad S., Haq F.I., Hussain I., Khan H. and **Bushnaq S.**, *Numerical simulation of nonlinear parabolic type Volterra partial integro-differential equations using quartic B-spline collocation method*, Nonlinear Studies, Volume 27(3), 2020, pp. 621-636.
- 28) **Bushnaq S.**, Nawaz R. and Zada L., *Optimum Solution of Time Fractional Coupled System of Partial Differential Equations*, Italian Journal of Pure and Applied Mathematics, accepted, 2020
- 29) **Bushnaq S.**, Shah K. and Alrabaiah H., *On modeling of coronavirus-19 disease under Mittag-Leffler power law*, Advances in Difference Equations, Article number 487, 2020, <https://doi.org/10.1186/s13662-020-02623-y>.
- 30) Hasan S., Maayah B., **Bushnaq S.** and Momani S., *A Modified Reproducing Kernel Hilbert Space Method for Solving Fuzzy Fractional Integro-differential Equations*, Boletim da Sociedade Paranaense de Matematica (BSPM), accepted, 2020.
- 31) **Bushnaq S.**, Saeed T., Delfim F. M. T. and Zeb A. Anwar, *Control of COVID-19 dynamics through a fractional-order model*, Alexandria Engineering Journal, Volume 60(4), 2021, <https://doi.org/10.1016/j.aej.2021.02.022>, pp. 3587-3592.
- 32) Alrabaiah H., Rahman M., Mahariq I., **Bushnaq S.** and Arfan M., *Fractional order Analysis of HBV and HCV Co-infection under ABC Derivative*, Fractals Journal, Volume 30(1), 2021.
- 33) **Bushnaq S.**, Khan H. and Arif M., *Numerical Method Based on Wavelets, for the Solution of Multi Order Fractional Differential Equations*, Thai Journal of Mathematics, accepted, 2022.
- 34) Beghami W., Maayah B., **Bushnaq S.** and Abu Arqub O., *The Laplace Optimized Decomposition Method for Solving Systems of Partial Differential Equations of Fractional Order*, International Journal of Applied and Computational Mathematics, DOI: [10.1007/s40819-022-01256-x](https://doi.org/10.1007/s40819-022-01256-x), 2022.

Conferences

- 1) Samia Bushnaq. **A Reproducing Kernel Hilbert Space Method for Solving Third- and Fourth-Order Fractional Integro-Differential Equations**, Graduate Thesis Conference 5, University of Jordan, 2014.

2) Samia Bushnaq. **The Multistep Reproducing Kernel Hilbert Space Method for Solving Chaotic and Non-Chaotic Systems**, International Congress on Fundamental and Applied Sciences (ICFSA), 2016.

Taught Courses:

- 1) Calculus I.
- 2) Calculus II
- 3) Calculus III
- 4) Linear Algebra.
- 5) Statistical Methods.
- 6) Numerical Analysis.
- 7) Engineering Mathematics I.
- 8) Engineering Mathematics II.
- 9) Operation Research.
- 10) Math for Business.

Skills and Software Programs:

- 1) ICDL (International Computer Driving License)/ 2004 include the following seven modules:
 - a) Concepts of IT.
 - b) MS Windows (Managing Files).
 - c) MS Word (Word Processing).
 - d) MS Excel (Spreadsheets).
 - e) MS Access (Databases).
 - f) MS PowerPoint (Presentation Tools).
 - g) Internet and E-mail (Information and Communication).

Languages Proficiency:

- 1) Arabic (Mother tongue).
- 2) English (very good).