



# FACULTY FULL NAME: Azhar Alhammali

POSITION: Assistant Professor

## Personal Data

Nationality | Saudi Arabia

Department | Mathematics

Official IAU Email |aalhammali@iau.edu.sa

Office Phone No. | 32239

## Language Proficiency

| Language        | Read      | Write     | Speak     |
|-----------------|-----------|-----------|-----------|
| Arabic (native) | Excellent | Excellent | Excellent |
| English         | Excellent | Excellent | Excellent |

## Academic Qualifications (Beginning with the most recent)

| Date      | Academic Degree   | Place of Issue          | Address   |
|-----------|---|-------------------------|---|
| 14/6/2019 | Doctor of Philosophy in Mathematics, GPA: 3.94 out of 4 | Oregon State University | Corvallis, Oregon, The United States of America |
| 13/8/2007 | Master's degree in mathematics, GPA: 4.59 out of 5      | King Saud University    | Riyadh, Saudi Arabia                            |
| 2002      | Bachelor's degree in science (Mathematics) 93.24%       | IAU                     | Dammam, Saudi Arabia                            |

## PhD, Master or Fellowship Research Title: (Academic Honors or Distinctions)

|        |   |
|--------|---|
| PhD    | Numerical Analysis of a System of Parabolic Variational Inequalities with Application to Biofilm Growth |
| Master | On the Existence and Uniqueness of Solution for Some Mixed Non-Local Problems                           |

## Fellowships & Professional Certificates

| Date          | Fellowship & Professional Certificate                   | Place of Issue            |
|---------------|---|---------------------------|
| January, 2023 | Academic Fellowship for Heads of Scientific Departments | Center of Leadership, IAU |



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|-----------|--|-----------|
| 7/10/2020 | Fellowship in Teaching & Learning in Higher Education (FHEA) | AdvanceHE |
|-----------|--|-----------|

### Professional Record: (Beginning with the most recent)

| Job Rank            | Place and Address of Work  | Date                   |
|---------------------|--|------------------------|
| Assistant Professor | College of Applied Studies and Community Service, Imam Abdulrahman Bin Faisal University | 12/12/2019 - present   |
| Lecturer            | College of Applied Studies and Community Service, Imam Abdulrahman Bin Faisal University | 20/2/2010 – 12/12/2019 |

### Scientific Achievements

#### Published Refereed Scientific Research

(In Chronological Order Beginning with the Most Recent)

| # | Name of Investigator(s)  | Research Title  | Publisher and Date of Publication  |
|---|--|---|--|
| 1 | Azhar Alhammali, Malgorzata Peszyska, Choah Shin                                   | Numerical Analysis of a Mixed finite Element Approximation of a Coupled System Modeling Biofilm Growth in Porous Media with Simulations | International Journal of Numerical Analysis & Modeling, January, 2024                              |
| 2 | Suhailah Al-Jameel, Azhar Alhammali, Mona Sakoury, Nada Alsabtti, Thuraya Alkhaldi | The Effect of (Tamkeen) Training Programs on the Quality Life of Orphans' mothers   | Education Sciences, submitted, June, 2023  |
| 3 | Choah Shin, Azhar Alhammali, Lisa Bigler, Naren Vohra, Malgorzata Peszyska         | Coupled flow and biomass-nutrient growth at pore-scale with permeable biofilm, adaptive singularity and multiple species                | Mathematical Biosciences and Engineering, March 3, 2021  |
| 4 | Azhar Alhammali Malgorzata Peszyska  | Numerical Analysis of a Parabolic Variational Inequality System Modeling Biofilm Growth at the Porescale                                | Numerical Methods for Partial Differential Equations, January, 2020                                |
| 5 | Said Mesloub and Azhar Alhammali   | On a Coupled Fourth Order Thermoelastic System with Nonlocal Constraints  | 2011 Fourth International Conference on Modeling, Simulation and Applied Optimization, 27 May 2011 |



## Current Research

| # | Research Title  | Name of Investigator(s) |
|---|---|-------------------------|
| 1 | Analyzing Brinkman Flow Model Coupled to Biofilm – Nutrient model | Azhar Alhammali         |

## Contribution to Scientific Conferences and Symposia

| # | Extent of Contribution  | Place and Date of the Conference                             | Conference Title  |
|---|---|--|---|
| 1 | Invited talk.<br>Title:" Numerical Analysis and Simulations of a Model of Biofilm Growth and Nutrient Utilization at Pore-Scale"                | KAUST, Saudi Arabia,<br>November 14-18, 2022                 | KAUST Research Conference on Scientific Computing and Machine Learning SCML 2022                                      |
| 2 | Minisymposium Presentation<br>Title: " Numerical Analysis of a Mixed Finite Element Approximation of a Model of Biofilm Growth in Porous Media" | Khalifa University, Abu Dhabi, UAE,<br>May 30 – June 2, 2022 | The 14th Annual InterPore Meeting, International Society for Porous Media (InterPore2022 hybrid).                     |
| 3 | Online attendance   | Oberwolfach, Germany<br>January 24 – 28, 2022                | Hybrid Workshop, Multiscale Coupled Models for Complex Media: From Analysis to Simulation in Geophysics and Medicine. |
| 4 | Online attendance   | Edinburgh (ICMS) and online,<br>November 8-12, 2021,         | Convex Integration and Nonlinear Partial Differential Equations.  |
| 5 | Online attendance   | Virtual Conference, July 19 - 23, 2021                       | Virtual SIAM Annual Meeting (AN21).   |
| 6 | Online attendance   | Online Conference,<br>June 21-24, 2021                       | SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS21).                                     |



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|----|--|---|---|
| 7  | Online presentation<br>Title: "BIO20"  | Online Seminar,<br>April 30, 2021   | Applied Mathematics & Computational Seminar at Oregon State University, USA       |
| 8  | Minisymposium<br>Presentation<br>Title: "Numerical Analysis of a Model of Biofilm Growth at the Pore-Scale"  | Online Meeting,<br>August 31-<br>September 4,<br>2020                         | The 12th Annual InterPore Meeting,<br>International Society for Porous Media      |
| 9  | Panelist   | Webinar, May<br>12, 2020  | InterPore Saudi Chapter Kick-off Meeting  |
| 10 | Seminar talk<br>Title: " Numerical Analysis of a Model of Biofilm Growth in Porous Media"  | Jeddah, Saudi Arabia, October 1, 2019.  | Computational Transport Phenomena Laboratory (CTPL) Seminar, KAUST                |
| 11 | Oral talk<br>Title: "Numerical Analysis of a System of Variational Inequalities with Applications"   | University of Washington<br>Bothell, Bothell, Washington, USA, April 13, 2019 | The 6th Annual Cascade RAIN Mathematics Meeting                                   |
| 12 | Poster & Blitz<br>Presentation<br>Title: "Numerical Analysis of a Model of Biofilm Growth & Nutrient Consumption at Pore-Scale"                      | Oregon State University,<br>Corvallis, OR, USA, April 5, 2019                 | Math Grad Appreciation Event, Oregon State University                             |
| 13 | Invited<br>Minisymposium<br>Presentation<br>Title: "Numerical Analysis of a System of Parabolic Variational Inequalities for Biofilm/Nutrient Model" | Houston, Texas, USA, March 11-14, 2019  | SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS19). |
| 14 | Invited talk<br>Title: " Numerical Analysis of a Coupled System of Parabolic Variational Inequalities for  | Oregon State University,<br>Corvallis, Oregon, USA, March 1, 2019.            | Applied Mathematics and Computational Seminar                                     |



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|----|---|--|--|
|    | Biofilm/Nutrient Model"   |  |  |
| 15 | Poster<br>Title: "Numerical Analysis of a Coupled System for Biofilm/Nutrient"  | Providence, Rhode Island, USA, August 20-24, 2018. | Advances in PDEs: Theory, Computation and Application to CFD (ICERM workshop)    |
| 16 | Invited Minisymposium Presentation  | Portland, Oregon, USA, July 9-13, 2018.            | SIAM Annual Meeting 18 (AN18)  |
| 17 | Invited talk<br>Title: " Coupled System for Biofilm / Nutrient Involving a Parabolic Variational Inequality"                            | Portland, Oregon, USA, April 14-15, 2018.          | Mathematical Society (AMS)   |
| 18 | Oral talk<br>Title: "Numerical Approximation of a Coupled System"   | Portland, Oregon, USA, April 7, 2018.              | The 5th Annual Cascade RAIN Mathematics Meeting                                  |
| 19 | Poster & Blitz presentation<br>Title: "Numerical Solutions of Parabolic Variational Inequalities with Applications"                     | Corvallis, Oregon, USA, October 27-29, 2017.       | 2017 SIAM Pacific Northwest (PNW) Conference,                                    |
| 20 | Poster & Blitz presentation<br>Title: "Numerical Model for Phase Transitions at Pore-Scale"   | Erlangen, Germany. September 11-14, 2017.          | SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS17) |
| 21 | Seminar talk<br>Title: "Convergence and Solvers for Solving Elliptic and Parabolic Variational Inequalities with Pointwise Constraints" | Corvallis, Oregon, USA, June 2, 2017.              | Applied Mathematics and Computational Seminar, Oregon State University           |
| 22 | Poster<br>Title: "Elliptic and Parabolic Variational  | Western Section in Pullman, Washington,            | American Mathematical Society (AMS)  |



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|----|---|---|---|
|    | Inequalities: Solvers and Applications" | USA, 22-23, 2017.   |   |
| 23 | Attendance                              | Washington State University, Richland, Washington, USA, November 2016 | Pacific Northwest Numerical Analysis (PNWNAS) |
| 24 | Attendance                              | Portland, Oregon, USA, April 2016                                     | The 3rd Cascade RAIN Meeting 2016             |

### Membership of Scientific and Professional Societies and Organizations

- American Mathematical Society (AMS), 2024
- Society for Industrial and Applied Mathematics (SIAM), 2014 - present
- International Society for Porous Media (InterPore), 2020 – 2022
- The local relationship officer of the steering committee of InterPore Saudi Chapter, 2020 - 2022
- American Mathematical Society (AMS), 2016 – 2019
- Women in Numerical Analysis and Scientific Computing (WINASC), 2018 - 2019
- Association for Women in Mathematics (AWM), 2018 - 2019

### Teaching Activities

#### Undergraduate

| #  | Course/Rotation Title              | No./Code | Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics) |
|----|------------------------------------|----------|--|
| 1  | Principles of Mathematics          | Math 110 | Lecture  |
| 2  | Management Mathematics             | Math 120 | Lecture  |
| 3  | Principles of Statistics           | Stat 102 | Lecture  |
| 4  | Statistics for Management          | Stat 103 | Lecture  |
| 5  | Management Writing Skills          | Fin 105  | Lecture  |
| 6  | Practical Training                 | MGMT 498 | Academic Mentoring   |
| 7  | Research Method                    | Fin 115  | Lecture  |
| 8  | Principles of Business Mathematics | Math 114 | Lecture & Lab.   |
| 9  | Calculus 1                         | Math 108 | Lecture  |
| 10 | Numerical Analysis for PDEs        | Math 509 | Lab  |
| 11 | Graduation Project                 | Math 506 | Seminar  |



### Course Coordination

| # | Course Title and Code     | Coordination | Co-coordination | Undergrad. | Postgrad. | From      | To        |
|---|---------------------------|--------------|-----------------|------------|-----------|-----------|-----------|
| 1 | Management Mathematics    | √            |                 | √          |           | 12/3/2023 | 11/6/2023 |
| 2 | Principles of Mathematics | √            |                 | √          |           | 19/1/2020 | 3/5/2020  |
| 3 | Calculus 1                |              | √               | √          |           | 14/1/2024 | Present   |
| 4 | Graduation Project        |              | √               | √          |           | 14/1/2024 | Present   |

### Student Academic Supervision and Mentoring

| # | Level      | Number of Students | From     | To      |
|---|------------|--------------------|----------|---------|
| 1 | Undergrad. | About 470          | 1/9/2019 | Present |

### Administrative Responsibilities, Committee and Community Service (Beginning with the most recent)

#### Administrative Responsibilities

| # | From       | To         | Position  | Organization  |
|---|------------|------------|---|---|
| 1 | 12/11/2022 | 13/6/2023  | Member of the Unit of Studies & Scientific Research                       | College of Applied Studies & Community Service, IAU |
| 2 | 24/12/2019 | 12/11/2022 | Coordinator of Vice Deanship for Development, Quality & Community Service | College of Applied Studies & Community Service, IAU |

#### Committee Membership

| # | From       | To        | Position                      | Organization   |
|---|------------|-----------|-------------------------------|--|
| 1 | 21/1/2024  | Present   | Member                        | Curriculum development Committee at Mathematics Department                           |
| 2 | 20/12/2021 | 31/3/2022 | Coordinator of female Section | High Committee of the 2nd Student Scientific Meeting                                 |
| 3 | 1/8/2021   | 16/6/2022 | Deputy Executive Director     | Administrative Committee of "Tamkeen Program" for Orphans' mothers – the 5th version |



|    |            |            |                    |  |
|----|------------|------------|--------------------|--|
| 4  | 2020/2021  | present    | Coordinator        | Examination Committee - Receiving and holding over Exams Committee   |
| 5  | 2020/2021  | 2021/2022  | Member             | Committee of Quality and Ethics of Scientific Research   |
| 6  | 11/11/2019 | 13/6/2023  | Member             | Project Based Learning Initiative Executive Committee  |
| 7  | 2019/2020  | 2020/2021  | Member             | Examination Committee - Receiving and holding over Exams Committee   |
| 8  | 10/10/2019 | 3/5/2020   | Member             | Quality of Examination Committee in Department of General & Supportive Courses at College of Applied Studies & Community Service |
| 9  | 29/8/2019  | 31/10/2019 | Member             | Sub-committee Supervising Student Council Election at College of Applied Studies & Community Service                             |
| 10 | 2017       | 2018       | Member & Secretary | Oregon State University Student Chapter of SIAM  |

### Volunteer Work & Community Service

| # | From              | To                | Type of Volunteer   | Organization                          |
|---|-------------------|-------------------|---|---------------------------------------|
| 1 | November 20, 2023 | November 20, 2023 | Gave a workshop: "Assessment and Constructive Feedback"                           | Deanship of Academic Development, IAU |
| 2 | October, 2023     | May, 2024         | Mentor: Professional Fellowship in University Teaching & Learning Program (PFUTL) | Deanship of Academic Development, IAU |
| 3 | January 15, 2023  | January 15, 2023  | Gave a workshop: "Active Learning"  | Deanship of Academic Development, IAU |
| 4 | December 27, 2022 | December 27, 2022 | Gave a workshop: "Basics in Analyzing and Interpreting Test Results"              | Deanship of Academic Development, IAU |
| 5 | December 27, 2022 | December 27, 2022 | Gave a workshop: "Assessment and Constructive Feedback"                           | Deanship of Academic Development, IAU |
| 6 | October, 2021     | June, 2022        | Mentor: Professional Fellowship in University Teaching & Learning Program (PFUTL) | Deanship of Academic Development, IAU |
| 7 | October 2021      | June 2022         | Mentor: Professional Fellowship in University                                     | Deanship of Academic Development, IAU |





|           |              |            |   |                                       |
|-----------|--------------|------------|---|---------------------------------------|
|           |              |            | Teaching & Learning Program   |                                       |
| <b>8</b>  | January 2020 | July 2021  | Mentor: Professional Fellowship in University Teaching & Learning Program | Deanship of Academic Development, IAU |
| <b>9</b>  | 13/3/2020    | 13/3/2020  | Gave a workshop: "Professional Development & Ethics"                      | Deanship of Academic Development, IAU |
| <b>10</b> | 13/1/2020    | 13/1/2020  | Gave a workshop: "Flipped Classrooms"                                     | Deanship of Academic Development, IAU |
| <b>11</b> | 1/2019       | 3/2019     | Grading MTH 312 "Advance Calculus" course                                 | Oregon State University               |
| <b>12</b> | 9/2018       | 12/2018    | Tutor in Mathematics & Statistics Learning Center                         | Oregon State University               |
| <b>13</b> | 1/10/2017    | 29/10/2017 | Student organizer, 2017 SIAM PNW conference                               | Oregon State University               |

### Scientific Professional Development

|   |  |
|---|--|
| 1 | Completed the online short course (40 hours): "Multiscale Modeling and Simulation: Scalable Simulation of Nonlinear Coupled Processes in Heterogeneous Fractured Porous Media" TU Delft, The Netherland, December 10-15, 2021. |
| 2 | Completed an online non-credit course "Introduction to Programming with MATLAB", Vanderbilt University, Coursera, July 2021.   |
| 3 | Participated in OpenFoam workshop, Oregon State University, Corvallis, Oregon, USA, June 3-4, 2019.  |
| 4 | Completed an online non-credit course " Python Data Structure", University of Michigan, Coursera, February 2018.   |
| 5 | Completed an online non-credit course "Programming for Everybody (Getting Started with Python)", University of Michigan, Coursera, December 2017.  |

### Administrative & Teaching Professional Development

|   |   |
|---|---|
| 1 | Participated in a training program: Employability Skills, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, May 28-29, 2023   |
| 2 | Completed "Fellowship in Academic Leadership" program (60 hours), Imam Abdulrahman Bin Faisal University, Sep. 2022- Jan. 2023  |
| 3 | Participated in a workshop (2 hours): Strategies for Students Empowerment by Self-learning skills, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, January 31, 2023 |
| 4 | Participated in a workshop: Strategic Leadership, Center for leadership, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, March 23, 2022.                            |



|    |   |
|----|---|
| 5  | Participated in an online training session: Learning and Leading in the 21st Century, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, May 25, 2021.   |
| 6  | Participated in an online training session: Education Development Using Technology, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, January 10, 2021.   |
| 7  | Participated in a workshop: Project-Based Learning Initiative, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, December 17, 24, 2019.   |
| 8  | Participated in a training program (28 hours): Certificate and Fellowship in Teaching and Learning in Higher Education, Module 1, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, December 2-5, 2019. |
| 9  | Participated in a training program (24 hours): Core Competencies in Teaching and Learning for Faculty Members. Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, December 25-27, 2019.                  |
| 10 | Participated in a training session (three hours): The role of the faculty member in the development of professional performance. Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, August 29, 2019.     |
| 11 | Participated in a training session (three hours): First day of class: get ready, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, 28 August 2019.  |
| 12 | Participated in a training session (three hours): Future skills and competency-based education, Dammam, Saudi Arabia, August 27, 2019.  |
| 13 | Participated in a training session (for three hours): Practical applications on the information processing system and memory aids. Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, August 26, 2019.   |
| 14 | Participated in Inquiry-based Learning (IBL) workshop, Oregon State University, Corvallis, Oregon, USA, November 3, 2018.   |
| 15 | Completed a one-credit course "Introduction to Math Profession", Oregon State University, Corvallis, Oregon, USA, September-December 2018.  |

### Personal Key Competencies and Skills: (Computer, Information technology, technical, etc.)

|   |   |
|---|---|
| 1 | Advanced: MatLab, Latex, Microsoft Office |
| 2 | Intermediate: FORTRAN, C, Linux, Python,  |

### Rewards & Recognitions

|   |  |
|---|--|
| 1 | 2018 Graduate Student Excellence Award, Oregon State University. May 2018<br><a href="https://math.oregonstate.edu/node/14973">https://math.oregonstate.edu/node/14973</a> |
| 2 | Oregon Lottery Award 2018-19, Oregon State University. April 2018  |

### Last Update

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