



# FACULTY FULL NAME: Maali Alawi Jawad Alkadhem

**POSITION:** Lecturer

## Personal Data

Nationality | Saudi

Official UoD Email | malkadhem@iau.edu.sa

Office Phone No. | 405

## Language Proficiency

Language	Read	Write	Speak
Arabic	✓	✓	✓
English	✓	✓	✓
Others			

## Academic Qualifications (Beginning with the most recent)

Date	Academic Degree	Place of Issue	Address
08/06/2022	PhD	The University of Glasgow	UK- Scotland
25/11/2006	MSc	King Saud University	KSA- Riyadh
05/06/2001	BSc	College of Sciences for Girls in Dammam	KSA- Dammam

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

PhD	Trigonometric V-systems and solutions of WDVV and related equations
Master	Real Hypersurfaces of A Complex Projective Space
Fellowship	N/A

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

Job Rank	Place and Address of Work			Date
Assistant Professor	Mathematics	College of Science and Humanities	Jubail	08/06/2022
Lecturer	Mathematics	College of Education	Jubail	23/05/2010



### Administrative Positions Held: (Beginning with the most recent)

Administrative Position	Office	Date
Head of Training and development center	College of Education-Jubail	01/2013-09/2015
Director of the quality and academic accreditation unit	College of Education-Jubail	05/2010-09/2015
Director of the self-study committee	College of Education-Jubail	01/2013-09/2015
Coordinator of the website development committee for the department of Mathematics	College of Education-Jubail	01/2013-09/2015
Member of equations committee for mathematics department	College of Education-Jubail	01/2013-09/2015

### Scientific Achievements

#### Published Refereed Scientific Researches

(In Chronological Order Beginning with the Most Recent)

#	Name of Investigator(s)	Research Title	Publisher and Date of Publication
1	Maali Alkadhém and Misha Feigin	Trigonometric V-systems and solutions of WDVV equations	J. Phys. A: Math. Theor 54 (2021), 024002. <a href="https://iopscience.iop.org/article/10.1088/1751-8121/abccf8/pdf">https://iopscience.iop.org/article/10.1088/1751-8121/abccf8/pdf</a>
2	Maali Alkadhém, Giorgos Antoniou and Misha Feigin	Solutions of BC <sub>n</sub> Type of WDVV Equations	In Integrability, Quantization, and Geometry: I. Integrable Systems, Proceedings of Symposia in Pure Mathematics 103.1 (2021).
3	Maali Alawi Alkadhém	Compact real hypersurfaces of a complex projective space	International journal of pure and applied mathematics-volume 60. No. 1, 2010, pp 25–35. <a href="https://www.academia.edu/29403666/Real_hypersurfaces_of_a_complex_projective_space">https://www.academia.edu/29403666/Real_hypersurfaces_of_a_complex_projective_space</a>



### Refereed Scientific Research Papers Accepted for Publication

#	Name of Investigator(s)	Research Title	Journal	Acceptance Date

### Scientific Research Papers Presented to Refereed Specialized Scientific Conferences

#	Name of Investigator(s)	Research Title	Conference and Publication Date

### Completed Research Projects

#	Name of Investigator(s) (Supported by)	Research Title	Report Date

### Current Researches

#	Research Title	Name of Investigator(s)
1	Trigonometric solutions of commutativity equations and their relations with WDVV equations	Maali Alkadhém and Misha Feigin

### Contribution to Scientific Conferences and Symposia

#	Conference Title	Place and Date of the Conference	Extent of Contribution
1	WDVV and commutativity equations. Integrable system and mathematical physics seminars	University of Glasgow 05/04/2022	Speaker (Seminar)
2	Edinburgh Mathematical Physics Seminars	University of Edinburgh 03/03/2021	Speaker (Seminar)
3	Trigonometric solutions of the WDVV equations. Integrable system and mathematical physics seminars	University of Glasgow 06/11/2019	Speaker (Seminar)
4	Integrable systems, special functions and combinatorics	Sabhal Mòr Ostaig, the Gaelic College, the Isle of Skye 23 - 28 June 2019	Participant (Scientific poster)
5	Geometry and mathematical physics workshop 2019	Loughborough 27-30 March 2019	Attendance



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### Membership of Scientific and Professional Societies and Organizations

- Integrable systems and mathematical physics. University of Glasgow (ISMP) 02/2017-to date.
- International Centre for Mathematical Sciences. University of Edinburgh (ICMS) 02/2017- to date.
- Saudi Association for Mathematical Sciences (SAMS) 2010-2015.

### Teaching Activities

#### Undergraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	General Mathematics	MATH 101 N	Full participation in the lectures, tutorial, teaching and exams
2	Calculus (1)	MATH 110 N	Full participation in the lectures, tutorial, teaching and exams
3	Analytic Geometry	MATH 235 N	Full participation in the lectures, tutorial, teaching and exams
4	Logic and Set Theory	MATH 122 N	Full participation in the lectures, tutorial, teaching and exams
5	Linear Algebra	MATH 233 N	Full participation in the lectures, tutorial, teaching and exams
6	Topology	MATH 462 N	Full participation in the lectures, tutorial, teaching and exams
7	Statistics and Probability Theory	MATH 374 NR	Full participation in the lectures, tutorial, teaching and exams
8	Number Theory		Full participation in the lectures, tutorial, teaching and exams
9	Euclidean and non- Euclidian geometry		Full participation in the lectures, tutorial, teaching and exams
10	Matrices' Algebra		Full participation in the lectures, tutorial, teaching and exams

#### Brief Description of Undergraduate Courses Taught: (Course Title – Code: Description)

##### General Mathematics (Math 101 N):

This course aims to teach students basic concepts in algebra and calculus. It includes: Ordinary algebraic operations on number, Factorizing , exponents and logarithms, Solving linear equations, Solving quadratic equations, Solving inequalities, The trigonometric functions and the trigonometric identities, Cartesian Coordinates - Equations of lines, circles, and conic sections and Word problems.

##### Calculus (1) (MATH 110 N):



The course aims to teach functions and their properties. It includes Limits, Continuity, differentiation, Chain rule, Implicit differentiation, Derivative of inverse function, Derivative of trigonometric functions, Applications of derivatives, Mean value theorem, L'Hopital rule, Indefinite integrals, Trigonometric techniques of integration – Fundamental theorem of calculus, Applications of definite integrals, Exponential and logarithmic functions and Inverse trigonometric functions.

**Analytic Geometry (MATH 235 N):**

This course aims to teach the following: sectors, plane and line equations and their coordinates. It includes the following: Conic sections and the quadratic equations, classification of conic sections, Rotation and translation of the coordinate system, Polar coordinates, The polar equations of the conic sections, Vectors in plane and space, The Cartesian, cylindrical, and spherical coordinates, Cylinders and quadratic surfaces.

**Logic and Set Theory (MATH 122):**

This course aims to teach Logic which includes: Logic of statements, Logical connectives, Truth table, Methods of proofs – Sets, Subsets, Operations on sets: Intersection and Union of sets, Relations and their properties, The equivalence relations and the ordered relations, Functions with special types: injective, surjective, and bijective, The countable set and Cardinal numbers

**Linear Algebra (MATH 233):**

This course aims to teach The following: solution methods of systems of equations, spaces and vectors, System of linear equations, Gauss elimination process, Vector spaces, Linear dependence and independence, Basis and Dimension, Inner product space, Orthogonal vectors, Gram, Schmidt Process, Linear mapping, Change of basis, Eigenvalues and eigenvectors and Diagonal form of a matrix.

**Topology (MATH 462 N):**

This course aims to teach the following: Metric spaces: definition and some examples, Open and closed sets in metric spaces, Normed spaces, Topological spaces: definition and some examples, Open and closed sets in topological spaces - interior, closure, boundary points, and limit points – The basis and sub basis of the topological structure, The relative topology, The connectedness and local connectedness spaces, The compact spaces and Bolzano Weierstrass, Classification using the axiom of separation and the axiom of countability.

**Statistics and Probability Theory (MATH 374 NR):**

This course aims to study the following: Statistical data (the data view, and representation of distributions frequency chart, measures of central tendency, measures of dispersion, measures of skewness). Probability theory (combinations, probability and the relative probability, conditional probability, the theory of Bayes, tree of probabilities, independent events). Random variables (discrete probability distributions including binomial, Poisson, Mathematical expectation and variance. Continuous probability distributions, including normal distribution, the distribution of T and the distribution of F, the distribution of chi-Square, the second random variables, correlation and communication. Theory of samples (sampling distributions among the samples, the distribution of sampling variances for samples). Statistical estimate (point estimate, unbiased estimate, the comparison between the estimates, confidence intervals for the mean, and confidence intervals of the variance.

**Number Theory:**



Integers, Divisibility, Prime numbers. The Euclidean Algorithm, greatest common divisors. Linear Diophantine equations; Congruence and Chinese Remainder Theorem. Euler's Theorem, Fermat's Theorem; Wilson's Theorem. Number theoretic functions.

**Euclidean and non- Euclidian geometry:**

Axiomatic approach to Euclidean geometry. Use of logic in mathematical reasoning. Hilbert's formulation. Removal of the parallel axiom. The discovery of non-Euclidean geometry. Hyperbolic geometry.

**Matrix Algebra:**

Matrices and their operations- inverse of matrix – Matrices and system of linear equations – Echelon matrix. Vector spaces- Linear subspaces- Linear Combinations and spans – Sum and direct sum Linear dependence and linear independence – basis and dimension– dimension and subspaces - rank of matrix –application to linear equations – coordinates Linear mappings- Kernel and image of a linear mapping- Rank of linear mapping – Nullity of linear mapping – operations with linear mapping. Determinants and its properties -Minors and cofactors - Classical adjoint- Inverse of a matrix- Rank of matrix- Linear systems of equations. Polynomial of matrices - Eigenvalues and eigenvectors of a matrix - Diagonalization and eigenvectors – Characteristic polynomial – Cayley Hamilton theorem.

**Postgraduate**

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	-		

**Brief Description of Postgraduate Courses Taught: (Course Title – Code: Description)**

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**Course Coordination**

#	Course Title and Code	Coordinati on	Co- coordination	Undergr ad.	Postgrad .	From	To
	-						

**Guest/Invited Lectures for Undergraduate Students**

#	Activity/Course Title and Code	Subject	College and University or Program	Date
	-			

**Student Academic Supervision and Mentoring**

#	Level	Number of Students	From	To



	2		30	2011	2012
	3		30	2013	2014
	4		30	2014	2015

### Supervision of Master and/or PhD Thesis

#	Degree Type	Title	Institution	Date
	-			

### Ongoing Research Supervision

#	Degree Type	Title	Institution	Date

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

#### Administrative Responsibilities

#	From	To	Position	Organization
1	01/2013	09/2015	Head of Training and development center	University of Dammam
2	05/2010	09/2015	Director of the quality and academic accreditation unit	University of Dammam
3	01/2013	09/2015	Director of the self-study committee	University of Dammam

#### Committee Membership

#	From	To	Position	Organization
1	01/2013	09/2015	Coordinator of the website development committee for the department of Mathematics	University of Dammam
2	01/2011	09/2015	Member of equations committee for mathematics department	University of Dammam

#### Scientific Consultations

#	From	To	Institute	Full-time or Part-time



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### Volunteer Work

#	From	To	Type of Volunteer	Organization

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

1	Microsoft applications			
2	Mathematica			
3	Latex			
4	Scientific workplace			

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### Last Update

26/07/2022