FACULTY FULL NAME:

POSITION:

Personal Data

Nationality | Tunisia

Date of Birth | 18/10/1979

Department | Mathematics

Official UoD Email | mmkratou@iau.edu.sa

Office Phone No. |37210

Language Proficiency

Language	Read	Write	Speak
Arabic	✓	✓	✓
English	✓	✓	✓
French	✓	✓	✓

Academic Qualifications (Beginning with the most recent)

Date	Academic Degree	Place of Issue	Address
5\12\2009	PhD	University Al-Manar-Faculty of Science	Tunis
28/5/2006	Master	University Al-Manar-Faculty of Science	Tunis
5/6/2003	Fellowship	University Al-Manar-Faculty of Science	Tunis

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

PhD	Wavelets on manifolds and applications
Master	Ondelettes à support compact sur l'intervalle
Fellowship	

Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work	Date

Assistant Professor	Imam Abdulrahman Bin Faisal University	College of science, Department of Mathematics	City AL Rayan	2013/2023
Assistant Professor	University of Monastir	ISIMA	Mahdia	2011/2013
Assistant	University of Sfax	IHEC	Sfax	2008/2011
Secondary school teacher	The Ministry of Education	Middle school	Beja	2005/2008

Administrative Positions Held: (Beginning with the most recent)

Administrative Position	Office	Date

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	M Kratou	KIRCHHOFF SYSTEMS INVOLVING FRACTIONAL p-LAPLACIAN AND SINGULAR NONLINEARITY	Electronic Journal of Differential Equations, Vol. 2022 (2022)
2	A Ghanmi, M Kratou, K Saoudi, DD Repovš	Nonlocal p-Kirchhoff equations with singular and critical nonlinearity terms	Asymptotic Analysis, 2022
3	M Kratou, K Saoudi, A AlShehri	Multiple solutions of a nonlocal system with singular nonlinearities	Journal of Mathematics, 2021
4	M Kratou, K Saoudi	The fibering map approach for a singular elliptic system involving the p (x)-Laplacian and nonlinear boundary conditions	Revista de la Unión Matemática Argentina, 2021
5	K Saoudi, M Kratou, E Al Zahrani	UNIQUENESS AND EXISTENCE OF SOLUTIONS FOR A SINGULAR SYSTEM WITH NONLOCAL OPERATOR VIA	Journal of Applied Analysis & Computation, 2020

		PERTURBATION METHOD	
6	K Saoudi, M Kratou, E Al Zahrani	Multiplicity Results for the Biharmonic Equation with Singular Nonlinearity of Super Exponential Growth in $\mathbb{R}4$	Mathematical Notes, 2019
7	M Kratou	Existence and uniqueness of solutions of an A-harmonic elliptic equation	- Studia Scientiarum Mathematicarum Hungarica, 2019
8	M Kratou	Three solutions for a semilinear elliptic boundary value problem	Proceedings-Mathematical Sciences, 2019
9	S Ghosh, K Saoudi, M Kratou, D Choudhuri	Least energy sign-changing solution of fractional $ p $-Laplacian problems involving singularities	arXiv preprint arXiv:1906.02225, 2019
10	M Kratou	Ground state solutions of p-Laplacian singular Kirchhoff problem involving a Riemann-Liouville fractional derivative	Filomat, 2019
11	A Ghanmi, M Kratou, K Saoudi	A multiplicity results for a singular problem involving a Riemann-Liouville fractional derivative	Filomat, 2018
12	M. Kratou, K. Saoudi S .Alsadhan	Multiplicity Results for the $p(x)$-Laplacian Equation with Singular Nonlinearities and Nonlinear Neumann Boundary Condition	Hindawi Publishing Corporation International Journal of Differential Equations Volume 2016, Article ID 3149482, 14 pages http://dx.doi.org/10.1155/2016/3149482 22/6/2016
13	M. Kratou, K. Saoudi	Existence of multiple solutions for a singular and quasilinear equation	Complex Variables and Elliptic Equations . An International Journal 6/12/2014
14	A Jouini. M Kratou . N Ajmi	General Wavelet Bases on the Cube and Applications	Int .Journal of Math .Analysis, Vol. 2, 2008,no.14,647-662 Jan/2008

15	A Jouini. M Kratou . H Bibi	More general constructions of wavelets on the interval.	Journal of Mathematical Analysis and Applications Jan/2008
16	A Jouini. M Kratou	Wavelet bases on a manifold	Journal of Functional Analysis Jul/2007

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
1	Kamel Saoudi and Mouna Kratou	Existence of multiple solutions for a singular and quasilinear equation	2014
2	Kamel Saoudi and Mouna Kratou	A multiplicity results for a singular problem involving the fractional $p-$Laplacian operator	2015
3	Kamel Saoudi, Mouna Kratouand Eadh Al Zahrani	UNIQUENESS AND EXISTENCE OF SOLUTIONS FOR A SINGULAR SYSTEM WITH NONLOCAL OPERATOR VIA PERTURBATION METHOD	2020

Current Researches

#	Research Title	Name of Investigator(s)

Contribution to Scientific Conferences and Symposia

#	Conference Title	Place and Date of the Conference	Extent of Contribution
1	Seminar (Department of Mathematics)	Department of Mathematics College of science	Presented my work
2	Partial Differential Equations &Applications	King Fahd University of Petroleum and Minerals Monday, December 24, 2018	Presence
3	Fractional Models in Science & Engineering (FMSE18) Theory and Computation	King Fahd University of Petroleum and Minerals Monday, December 10, 2018	Presence
4	The 18 th Tunisian Mathematical society symposium, SMT- CSMT	Mahdia (Tunisia) 19-22 march 2012	Presence
5	The 17 th Tunisian Mathematical society symposium, SMT- CSMT	Sousse (Tunisia) 15-19 march 2010	Presence
6	The first Tunisian-Franco Conference of Mathematics	Djerba- Tunisia 19-20 march 2009	Presented my thesis
7	The 16 th Tunisian Mathematical society symposium, SMT- CSMT	Sousse (Tunisia) 17-21 march 2008	Presence
8	University of Paris VII	Training at the University of Paris VII, March 2007 Paris VII, France	Give a talk
9	University of Paris VII	Training at the University of Paris VII, September 2008 Paris VII, France	Presence
10	The 15 th Tunisian Mathematical society symposium, SMT- CSMT	Sousse (Tunisia) 19-23 march 2007	Give a talk

Membership of Scientific and Professional Societies and Organizations

- Deanship of University Educational Development (Chairperson of the Committee on Libraries)
- Deanship of E-Learning (course coordinator-Course Development)
- The National Commission for Academic Accreditation & Assessment (NCAAA)(Committee Membership)
- Academic Counseling (Students' Advisory)
- Deanship of University Educational Development (Committee Membership).
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Teaching Activities

Undergraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	Euclidean and non -Euclidean geometry	Math471N	Lectures Labs

2	Differential forms & Vector analysis	Math 443N	Lectures Labs
3	Applied Mathematics	Math 413N	Lectures Labs
4	Ordinary differential equations	Math302	Lectures Labs
5	Calculus I	Math 152N	Lectures Labs
6	Calculus 1	MTH101	Lectures Labs
7	Linear Algebra	Math 233N	Lectures Labs
8	Set Theory	Math172N	Lectures Labs
9	Principles of Statistics		Lectures Labs
10	Calculus 2	Math 205	Lectures Labs
11	Calculus 3	Math 301	Lectures Labs
12	Partial Differential Equations	Math 401	Lectures Labs
13	Differential Equations	Math 310	Lectures Labs
14	Special Functions		Lectures Labs
15	Research Project		Lectures Labs
16	Foundation of Mathematics	Math 206	Lectures Labs
17	General Math 1	MTH11	
18	General Math 2		

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

1	We prepared to cover the basic concepts of Euclidian Geometry. Some of the models put forward ideas in the plane and space and modules of several kinds of Geometry this after several groups offer in the mathematical building of the Euclidian Geometry and their basic concepts. This for review of Euclid's axioms and explain their shortcomings and then non Euclidian Geometry is appearance and so divided the axioms in fife groups , Falling, Intra ,Matching, Continuity and Parallel.
2	Multi-variable functions: continuity, differentiability, partial derivatives, Jacobi matrices, chain rule. Inversion theorem and theorem of implicit functions. Vector differential calculus: vector fields, differential operators, orthogonal curvilinear coordinates. Vector analysis and applications: theorems of Green, Gauss and Stokes. Differential forms: degree of differential forms, exact and closed differential forms, exterior differential of differential forms, vector fields and differential forms and integrals of differential forms.
3	Series solutions of ODE's-Fourier series; Euler Fourier formulas, Convergence of Fourier series and Dirichlet conditions, Half-range Fourier series, Parseval's identity, Solution of the wave, heat and Laplace's equations by separation of variables).Fourier integrals and Fourier transforms (Parseval's identity for Fourier integrals, The convolution theorem for Fourier transforms- integral transformation and their applications in initial boundary value problems- The gamma and beta functions, Bessel's and Legendre's equation- Eigenvalue Problem, Sturm Liouville systems, Green's function,
4	Introduction to ordinary differential equations (classification and creation). ODEs of first order. ODEs of second order: general solution of linear equations of second order, differential equations with constant coefficients, method of variation of constants, method of undetermined coefficients. ODEs of higher orders. Series solutions of linear equations. Linear systems of differential equations.

5	Limits. Continuity. The intermediate value theorem. Differentiation. The chain rule. Implicit Differentiations. Differentiation of inverse function. Differentiation of trigonometric functions. Applications of derivatives. Differentiation applications. The intermediate value theorem and the theory of L'Hôspital's Rule. Definite Integration. Integrals of trigonometric functions. Indefinite integration. The Fundamental Theorem of Calculus. Integration applications.
6	Limits and continuity of function of a single variable. Differentiation, differentiation rules, derivative of trigonometric functions, the chain rule, implicit differentiation. Differentiation of inverse functions and logarithms. Application of derivative, the Mean Value Theorem, monotonic functions, concavity and curve sketching. Indeterminate forms. Applied optimization, antiderivative.
7	Solve linear system of equations by Gauss elimination method - Find basis and dimension Find the rank of matrix- Find determinant of matrix-Find the inverse of matrix -Apply Gram- Schmidt process on linear independent set- Change of basis -Find the Eigen-values of matrix .
8	the basic concepts of sets.-the notions of Union, Intersection, Difference Complements and Power Sets- definition of subsets of Cartesian product of sets and relations. -Determine the different types of relations. - definition of functions.-Discuss the different types of functions (One-one function ,Onto function , Correspondence).-Understand infinite sets. -Determine countable sets and cardinal number
9	Describing statistical data by tables, graphs, and numerical measures, Chebychev's inequality and the empirical rule, counting methods, combinations, permutations, elements of probability and random variables, the binomial, the Poisson, and the normal distributions, sampling distributions, elements of testing hypotheses, statistical inference about one and two populations parameters.
10	Definite and indefinite integrals of functions of a single variable, fundamental Theorem of Calculus, applications of the definite, techniques of integrations and improper integrals, infinite sequences and series, power series, the Binomial Series and applications of Taylor series.
11	Study of main concepts of Calculus 3 as follows: 1. How to draw the curve of the function in the 3-D Coordinate System 1. Studying the Partial Derivatives and Higher Order Partial Derivatives 2. properties of functions and how to draw the curve of the function 4. Finding the tangent of the curve and the maximum and minimum values of the function. 5. Studying the Double Integrals and triple integrals.
12	Classify ordinary differential equations. Solve ordinary differential equations of first and second order. Deduce solutions of partial differential equations using separable of variables. Solve Wave equation in two and three variables.
13	Introduction to ordinary differential equations (classification and creation). ODEs of first order. ODEs of second order: general solution of linear equations of second order, differential equations with constant coefficients, method of variation of constants, method of undetermined coefficients. ODEs of higher orders. Series solutions of linear equations. Linear systems of differential equations.

Postgraduate

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

2			

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

1	
2	

Course Coordination

#	Course Title and Code	Coordination	Co-coordination	Undergrad.	Postgrad.	From	To
1	Euclidean and non - Euclidean geometry	✓		✓			
2	Calculus 1	✓		✓			
3	Calculus II	✓		✓			
4	Partial Differential Equations	✓		✓			
5	Ordinary Differential Equations	✓		✓			

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

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	1436	1438	Chairperson of the Committee on Libraries	Department of Mathematics
2	2017	2018	Chairperson of the Committee in Auto-Study of Mathematics program for Quality and Accreditation (Qasd)	Department of Mathematics – College of science in Dammam
3	1440	1443	Coordinator for Equivalency of curriculum committee	Department of Mathematics
4	1444	To present	Coordinator for Quality and Academic Accreditation Unit	Department of Mathematics

Committee Membership

#	From	To	Position	Organization
1	2013	2017	Committee Membership in the fourth criterion on the education and learning	The National Commission for Academic Accreditation & Assessment (NCAAA)
2	2016	2017	Committee Membership Course coordinator Course Development	Deanship of E-Learning The Basic E-Courses Development and Delivery Project.
3	2015	2017	Committee Membership (Chairperson of the Committee on Libraries)	Deanship of University Educational Development
4	2013	2023	Committee Membership (Students' Advisory)	Academic Counseling

5	2015	2023	Committee Membership	Deanship of University Educational Development.
6	2017	2022	A member committee of preparing an electronic courses for (Calculus1-2-3; Partial Differential Equation, Applied Mathematics, Applied Statistics, Principals of Algebra, Mathematics for Physical Sciences, Numerical Analysis	Department of Mathematics
7	2022	To present	A member committee Graduate Studies and Scientific Research Committee	Department of Mathematics
8	2022	To present	A member Directorate of Curriculum and Academic Programs	Department of Mathematics

Scientific Consultations

#	From	To	Institute	Full-time or Part-time

Volunteer Work

#	From	To	Type of Volunteer	Organization
	2016	**2020**	training	Alumni center in science college

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

1	(X)html, Latex, Beamer	
2	powerpoint, excel, Linux	
3	Blackboard	
4	Teamwork and leadership.	

Last Update

14/2/2023