



EBTISAM ABDULLATIF ALDAAIS

Assistant Professor

Personal Data

Saudi |

Biomedical Engineer |

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Office Phone No. | S3001 Building A34

Language Proficiency

Language	Read	Write	Speak
Arabic	Yes	Yes	Yes
English	Yes	Yes	Yes
Others	-	-	-

Academic Qualifications (Beginning with the most recent)

Date	Academic Degree	Place of Issue	Address
2016	Doctor of Philosophy	University of South Carolina	Columbia, USA
2012	Master of Science	University of South Carolina	Columbia, USA
1999	Bachelor of Science in Physics	King Faisal University	Dammam, SA

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

PhD	A Theoretical Study of Polymer Based Drug Delivery Systems
Master	A Dosimetric Study of a VMAT Head and Neck Treatment Plan Using TLDs and Gafchromic Films
Fellowship	Fellowship in academic leadership for heads of departments Imam Abdulrahman Bin Faisal University, Dammam, KSA, 2023

Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work			Date
Assistant Professor	College of Applied Medical Sciences	Imam Abdulrahman bin Faisal Univ	Dammam, SA	2020 - present
Assistant Professor	College of Engineering	Imam Abdulrahman bin Faisal Univ	Dammam, SA	2016 - 2020
Lecturer	College of Engineering	University of Dammam	Dammam, SA	2013 - 2016



Demonstrator	College of Medicine	University of Dammam	Dammam, SA	2007 - 2013
Lab Technician	College of Medicine	University of Dammam	Dammam, SA	2004-2007
Science and Math Supervisor	Middle and high school	Dar Al-Bayan School	Alkhobar	2003- - 2004
Science Teacher	Elementary, meddle and high school	Al-Faislyah School	Alkhobar	2000 - 2003
Room Teacher	First grade	Al-Dharan Ahliah School	Alkhobar	1999 - 2000

Administrative Positions Held: (Beginning with the most recent)

Administrative Position	Office	Date
Head of Department	College of Applied Medical Sciences	2023 - 2025
Coordinator of the Practical Teaching initiative	College of Dentistry	2019 - 2020
Coordinator of the Academic Advising Committee	Biomedical Engineering Dep.	2019 - 2020
Lab Safety Committee	Biomedical Engineering Dep.	2018 - 2020
Vice Dean	College of Engineering (female section)	2016-2017

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
13	Subha Yegnaswamy, Selvaa Kumar Ca, and E. A. Aldaais	"Conformational dynamics of the membrane protein of MERS-CoV in comparison with SARS-CoV-2 in ERGIC complex"	Subha Yegnaswamy, Selvaa Kumar Ca, and E. A. Aldaais
12	O. Bawazeer, B. Baatayah, and E. A. Aldaais	"Evaluation of X-ray Radiation Shielding Performance of Bi ₂ O ₃ and BaTiO ₃ Embedded in PVP and PEG polymer Nanocomposite"	O. Bawazeer, B. Baatayah, and E. A. Aldaais
11	E. A. Aldaais	"A comprehensive review on the COVID-19 vaccine and drug delivery applications of interpenetrating polymer networks"	E. A. Aldaais
10	H. Alsleem, A. Tajaldeen, A. Almutairi, H. Almohiy, E. A. Aldaais, R. Albattat	"The Actual Role of Iterative Reconstruction Algorithm Methods in Several Saudi Hospitals As A Tool For Radiation Dose Minimization of CT Scan Examinations"	H. Alsleem, A. Tajaldeen, A. Almutairi, H. Almohiy, E. A. Aldaais, R. Albattat
9	E. A. Aldaais, S. Yegnaswamy, F.	"Sequence and Structural	E. A. Aldaais, S. Yegnaswamy, F.



	Albahrani, F. Al-Sowaiket, S. Alramadan	Analysis of COVID-19 E and M protein with MERS Virus E and M protein – A Comparative Study"	Albahrani, F. Al-Sowaiket, S. Alramadan
8	E. A. Aldaais, S. A. Almaghrabi, and M. M. Alabdullah	"Mono or Dual- Ligand Nanoparticles: Theoretical Study"	Ind Chem, 5:2, Feb (2020): 1000129
7	E. A. Aldaais and S. Crittenden	"Generalizing Rosenbluth's Algorithm to Include Along-the-Chain Intramolecular Energies"	J. Polym. Sci. Part B: Polym. Phys., 57, Nov (2019): 1684–1691. doi: 10.1002/polb.24903
6	E. A. Aldaais	"New method of increased accuracy for the calculation of intermolecular interactions in thermotropic polymers"	Results in Materials 1, August (2019): 100013. doi: 10.1016/j.rinma.2019.100013
5	E. A. Aldaais	"Contributing to Vision 2030 with a Saudi Polymer Research Center"	J Nanomed Nanotechnol 10(1), February (2019): 527. doi: 10.4172/2157-7439.1000527
4	E. A. Aldaais	"Generalized Theory of Monoligand-Receptor Binding for the Improvement of Nanoparticle Design"	J Nanomed Nanotech- nol 9(4), July (2018): 512. doi: 10.4172/2157-7439.1000512
3	E. Aldaais and M. Uline	"A Theoretical Study of Polymer-Based Drug Delivery Systems"	Biophysical Journal 108.2 (2015): 633a-634a.
2	E. Aldaais and M. Uline	"A Theoretical Study of The Coupling Between Chemical Equilibrium and Physical Interactions That Determine Self-Organization in End-Grafted Polyelectrolytes for Tissue-Material Applications"	Bulletin of the American Physical Society, 59 (2014).
1	E. Aldaais, D. Tedeschi, W. Gebreamalk, and H. Alkhatib	"Accuracy of A VMAT Planning System for Head and Neck Radiotherapy"	Medical Physics, 39(6), June (2012): 3793-3794

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 [The name of the presenter is bolded]

#	Name of Investigator(s)	Research Title	Conference and Publication Date
14	[Talk] Ebtisam A. Aldaais & Scott R. Crittenden,	"From Modeling Free Chains with the Rosenbluth Algorithm to Modeling Rigid, Compact, and Overlapped Chains with Our Developed Algorithm"	2020, APS March Meeting 2020, 02.01.40, 04.01.45, Denver, USA
13	[Poster] Ebtisam A. Aldaais & Scott R.	"Generalizing Rosenbluth Algorithm to Include Along-the-Chain Intramolecular	2019, Gordon Research Conference on Physical Organic Chemistry,



	Crittenden	Energies”	Holderness School in Holderness, NH, USA
12	[Talk] E. Aldaais	“The Power of Theory in Developing the De- sign of Targeted Nanoparticles”	2018, 20th International Conference on Computer Aided Drug Designing and Drug Delivery, Chicago, Illinois, USA
11	[Talk] E. Aldaais	“A decoupled mean-field theory for increased ac- curacy in estimating the intermolecular interactions in an inhomogeneous environment”	2017, Biomolecules and Nanostructures 6, Podlesice, Poland
10	[Talk] Najybah H. AlTalib , Nourah I. Alsultan , Randa A. Khan , Zainab S. AlKathim , Ebtisam A. Aldaais	“Design of A Stable Bio- compatible Surface of Grafted Thermoresponsive Polymers”	2017, CONFERENCE ACTIVITIES RESEARCH PROJECTS Undergraduate Research Forum at Prince Sultan University, Riyadh, Saudi Arabia
9	[Poster] E. Aldaais and M. Uline	“A Theoretical Study of Micellar Ligand- Receptor Binding Regulation: Dual Ligand”	2016, 3rd NANOSMAT-USA 2016, University of Texas at Arlington, USA
8	[Talk] E. Aldaais and M. Uline	“A Theoretical Study of Micellar Ligand- Receptor Binding Regulation: The Effect of Receptors Density on The Binding to A Distinctive Ligand”	2016, 3rd NANOSMAT- USA 2016, University of Texas at Arlington, USA
7	[Poster] E. Aldaais and M. Uline	“A Theoretical Study of Micellar Ligand- Receptor Binding Regulation”	2015, Biophysical Thematic Meeting (Polymers and Self- Assembly: From Biology to Nanomaterials), Rio de Janeiro, Brazil
6	[Talk] E. Aldaais and M. Uline	“A Theoretical Study of Micellar Ligand- Receptor Binding Regulation”	2015, Biochemistry Research Seminar, University of South Carolina at Columbia, USA
5	[Talk] E. Aldaais and M. Uline	“A Theoretical Study of Polymer- Based Drug Delivery Systems”	2015, 1st Biomedical Engineering scientific Day (New Trends in Biomedical Engineering Research), University of Dammam at Dammam, Saudi Arabia
4	[Poster] E. Aldaais and M. Uline	“A Theoretical Study of Micelles as Targeted Polymer-Based Drug Delivery Systems”	2015, Biophysical Society 59th Annual Meeting, Baltimore MD, USA
3	[Talk] E. Aldaais and M. Uline	“A Theoretical Study of Polymer- Based Drug Delivery Systems”	2014, Institute of Bioinformatics and Structural Biology, National Tsing Hua University, Hsinchu, Taiwan
2	[Poster] E. Aldaais and M. Uline	“A Theoretical Study of the Coupling between Chemical Equilibrium and Physical Interactions that Determine Self-Organization in End-Grafted Polyelectrolytes for Tissue-Material Applications”	2014, Southeastern Section of the American Physical Society, Columbia SC, USA
1	[Poster] E. Aldaais and M. Uline	“A Theoretical Study of the Coupling between Chemical Equilibrium and	2014, Biophysical Thematic Meeting (Modeling of Biomolecular Systems



	Physical Interactions that Determine Self-Organization in End-Grafted Polyelectrolytes for Tissue-Material Applications”	Interactions, Dynamics, and Allostery: Bridging Experiments and Computations), Istanbul, Turkey
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Current Researches

#	Research Title	Name of Investigator(s)
1	Sequence and Structural Analysis of the Nucleocapsid (N) Protein of Coronaviruses: Insights into Drug Targeting	Ebtisam A. Aldaais and Pharmaceutical College Students
2	Computational Analysis of Ligand Interactions with HER2-Positive Protein Using Natural Polymers	Ebtisam A. Aldaais

Membership of Scientific and Professional Societies and Organizations

- Honor Society Member (6/2016-Present)
- American Physical Society member (9/2014-Present)
- Biophysics Society Member (11/2013-Present)
- Golden Key member at University of South Carolina (Dec 2013 - present)
- South Carolina Alumni member (March 2012)

Teaching Activities

Undergraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
	Computer Application in Radiological Sciences 2	COMP 210	100%
8	Computer Application in Radiological Sciences 1	COMP 303	100%
7	Fundamental Radiation Physics	RADL 213	100%
6	Physics I	PHYS 271	100%
5	Safety & Maintenance in Healthcare	BIOEN 452	100%
4	Fluid Dynamics	BIOEN 441	100%
3	Design of Medical Devices	BIOEN 521	100%
2	Senior Design Project II	BIOEN 532	100%
1	Senior Design Project I	BIOEN 531	100%

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

8	MR Clinical Practice I – RADL 416: This course enables students to acquire the necessary clinical skills to
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	<p>understand, familiarize & operate Magnetic Resonance Imaging (MRI) instrumentation and to undertake MRI examinations of certain body parts. It is designed to involve students within the working environment of Magnetic Resonance medical scanner. The student will be able to know the MRI scanner physics, MRI instrumentations and safety. The student will also be able to correctly position the patient on the scanner's table for various MRI examinations, e.g. head, abdomen with and without contrast media. Emphasis is placed on sectional anatomy and pathological appearance of normal and abnormal organs and tissue.</p>
7	<p>Fundamental Radiation Physics – RADL 213: This course is an introduction to the atom and radioactivity. The major topics to be covered include atomic structure, electricity, magnetism, decay processes and products, and interaction of radiation with matter.</p>
6	<p>Physics I – PHYS 271: This is an introductory course in Classical Mechanics. PHY 271 is the first of a two-semester general physics course. The primary subject of this course is Mechanics. Topics includes motions in multiple dimensions, vectors, forces and the laws of motion, energy, momentum, and rotational motion. Elements of this subject material are found in all parts of nature.</p> <p>The primary objective of the course is to prepare students with fundamental knowledge of physics and obtain skills necessary for higher-level science and engineering courses.</p> <p>The course is quite intense, and it will require you to invest considerable time studying and solving problems. To obtain maximum benefit from this course you should read the material before and after it is covered in class. It is difficult to catch up if you fall behind. Class attendance is very important since some of the exam questions will be drawn from the class lecture problems and related discussions.</p>
5	<p>Safety & Maintenance in Healthcare – BIOEN 441: A study of codes, standards, and management principles. Emphasis is on the proper use and application of safety test equipment, preventive maintenance procedures, and hospital safety. Course topics include: Definition of safety. Electrical, gas, and fire safety. Safe environment for patients, medical personnel and attendants. Medical Equipment life cycle (Planning, Acquisition, Test, Maintenance, Decommissioning). Generation of a computer database for equipment, suppliers, dealers and manufacturers (Medical Equipment Record MER). Using Medical Equipment service manual. Preventive maintenance procedures. Corrective maintenance, repair and amendment of existing equipment. Basic troubleshooting principles.</p>
4	<p>Fluid Dynamics – BIOEN 441: This course introduces the fundamentals of biofluid statics and dynamics and continuum mechanics, and covers the application of these principles to a variety of biological flows. Fluid flow in physiology and biotechnology is investigated at a variety of scales, ranging from subcellular to whole body.</p>
3	<p>Design of Medical Devices – BIOEN 521: The course provides an overview of several clinical issues and encourages the students to use mathematical, physical, and physiological knowledge, etc. to design a marketable hardware or medical software device. The design process includes defining the clinical problem, designing several clinical tests to insure the device's permeability, biocompatibility, safety, and performance. The design also includes testing the device market promptness through FDA regulation, human factors, and medical product liability. The course enables the students to improve both communication skills through a mix of individual and team assignments. Assignments will also include conceptual and practical thinking on developing medical devices that can solve serious clinical problems or improve lifestyles.</p>
2	<p>Senior Design Project – BIOEN 532: Individual design in a field of special interest under the supervision of a faculty member as a requirement for the B.Sc. degree, culminating in a written report/thesis. The central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. The Graduation Project is divided between two semesters. Methodology is developed and pre-data are collected in the first semester. Experiment is run, data is analyzed, and conclusions are sought in the second semester.</p>
1	<p>Senior Design Project – BIOEN 531: Individual design in a field of special interest under the supervision of a faculty member as a requirement for the B.Sc. degree, culminating in a written report/thesis. The central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. The Graduation Project is divided between two semesters. Methodology is developed and pre-data are collected in the first semester. Experiment is run, data is analyzed, and conclusions are sought in the second semester.</p>



Postgraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	Computer Applications in Radiological Sciences	MSRS 608	100%
2	Mathematical Methods for Radiological Sciences	MSRS 603	100%
3	Research Project (Master's degree Thesis)	MSRS 699	50%

Student Academic Supervision and Mentoring

#	Level	Number of Students	From	to
4	RS department	75	2023	2025
3	All levels	200	2019	2020
2	4th level	30	2018	2019
1	3rd level	30	2017	2018

Supervision of Master and/or PhD Thesis

#	Degree Type	Title	Institution	Date
1	Masters	An Ultrasound-Based Study of Placenta Previa Association Congenital Anomalies in Maternity and Children Hospital in Dammam	Imam Abdulrahman Bin Faisal University	Oct, 2024

Ongoing Research Supervision

#	Degree Type	Title	Institution	Date
1	Ph.D.	Virtual Screening of MERS-CoV Membrane Protein to Identify Potent Lead Compounds for Immunity Enhancement: A Nutraceutical Approach	D.Y.Patil Deemed to be University, Navi Mumbai, INDIA	2022 - present

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

1	Programing Languages: Fortran - Python - Matlab
2	OS: OSX Unix, Linux, Windows
3	GNU General Public License: Git
4	LaTeX



Last Update

7/1/2025