Ziad Zaky Adwan

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Quick Info. **Nationality**: United States of America.

Residence: Abu Dhabi/UAE, Texas/USA & Saigon/Vietnam.

Education: B.Sc, Mathematics, **American University of Beirut**, Lebanon, 1999.

M. Sc, Mathematics, **American University of Beirut**, Lebanon, 2001.

M. Sc, Mathematics, **Temple University**, Philadelphia, 2003.

PhD, Mathematics, **Temple University**, Philadelphia, 2006.

Post Doctoral Research Assistant, Mathematics, **Temple University**, Philadelphia,2006-2007.

Employment: **Title**: **Associate Professor of Mathematics** (Zayed University) (January 2019 to Present)

Title: **Associate Professor of Mathematics (American ~~Uni~~versity in Dubai) (September 2016 to July 2018)** .

Title: **Assistant Professor of Mathematics** (American University in Dubai) (September 2012 to August 2016)

Title: **Assistant Professor of Mathematics** *(University of Texas, USA) (Tenure-Track Position)* (September 2007 to August 2012)

Title: **Post-Doc. Research Assistant** *(Temple University, Philadelphia, PA, USA)* (September 2006 to August 2007)

Title: **Graduate Assistant** (Fellowship) *(Temple University, Philadelphia, PA, USA)* (September 2001 to August 2006)

COVER LETTER

Dr. Ziad Adwan

Dear Sir/Madam,

My Name is Ziad Adwan, and I am interested in applying for a Mathematics position in your university. I have a PhD in Mathematics from Temple University in 2006, two MSc. Degrees in mathematics and a BS degree from the American University of Beirut.

Currently, I am a full-time Associate Professor of Mathematics at Zayed University. Since finishing my PhD, I have been involved in a lot of projects pertaining to quality teaching in mathematics and popularizing mathematical ideas.

I have taught almost all undergraduate mathematics courses and masters level courses (see my CV) and my research focuses on studying analytical properties of solutions of Complex Vector Fields in n-dimensional Complex Space. Here is my personal link on Research Gate: (https://www.researchgate.net/profile/Ziad-Adwan).

I have created a YouTube Channel (https://www.youtube.com/@ziadadwan) to record online lectures with the highest quality pedagogical experience. This was very successful with my students as evidenced by their evaluation of my courses. Here is one sample lecture on Statistics with Population Proportions that had a lot of views on my YouTube Channel; it also shows my teaching techniques:

- Statistics with Population Proportions https://youtu.be/fmt4jGm1iV8

Artificial Intelligence will eventually replace human beings in most sectors of education and there will be *less demand for teachers* and *more demand for content producers of highest quality educational lectures and tools*. We explored the possibility of teaching full classes using VR technology and we made several videos on this topic. Here is a Sample video that was made on how we see the use of VR in education in the future:

- An introduction to Teaching in Virtual Reality https://youtu.be/QZfgod8cc_0

I am a team player and easy-going person who can adjust quickly to new demands and adventures and will be successful in fulfilling all my duties and more once I join your university. Thank you for considering my application.

Ziad Adwan
ziadadwan@icloud.com

Teaching Statement

My teaching has been constantly changing in the past two decades. I have taught all levels of mathematics from Developmental mathematics [College Algebra, Precalculus, etc.) up to master's level Pure/Applied mathematics courses (See my CV).

I believe that to teach any topic, one must find an interesting and relative example for the student audience that can facilitate the understanding of the topic being presented. Usually, this example should contain all the main ideas of the section so that once we are done with the example, going through the topic can become much more comprehensible to the student. Finding such an example for each of the topics is not a fixed exercise; it is always changing and improving throughout the years of experience. To give you a concrete example of what this means, here is a link to one of my lectures on Statistics that describes the meaning of the P-Value (Short for Probability-Value) using a Coin that was flipped 8 times. Notice that I try to relate things to the UAE: https://youtu.be/G2PpUy2JK1I?t=585.

I also believe that making instructional videos to teach the main topics of the course would be an excellent practice for students' out of class experience. Below are 2 of my YouTube video lectures showing my teaching approach. They were recorded at a time when we had to teach remotely because of Covid-19, and I made sure that they will be enough for a student to understand the entire textbook without a teacher who is available face-to-face. Please take some time to watch their content as this is the best way that I can think of to show my teaching philosophy and teaching Style. The first video is on the topic of Statistical Hypothesis Testing and the second is on the topic of Population Proportions:

1. Fundamentals of Hypothesis Testing: https://youtu.be/G2PpUy2JK1I
2. Statistics with Population Proportions: https://youtu.be/fmt4jGm1iV8

To prevent my own teaching from becoming stagnant, I encourage students to provide feedback, either one-on-one, or in writing, including anonymous e-mails. I also encourage them to share their opinions with classmates alone or in my presence. Occasionally, I have been approached with methods not discussed in the text. For example, one student recently inquired about an integration method called the "ladder method". Although the method only works in special cases, it illustrates how student participation leads to greater understanding through research. Another strategy that deserves mention is that of presentation. It is easy to teach calculus as a series of rules and procedures. If this is done, however, mathematical insight and the practical value of the concepts discussed disappear under the weight of procedural lists. To avoid this, I give equal emphasis to both concepts and procedures by giving additional problems not covered in the text. Such problems are designed to direct attention to both procedures and concepts. I have also incorporated an essay assignment which has been useful in eliciting critical thinking. One student, who was struggling with integration techniques, told me that he liked the idea of essay writing because it forced him read his text thoroughly in addition to investigating online calculus sources. As a result of the extra effort, he found that the techniques that had originally been overwhelming lost their power to defeat him and he felt more in control of his learning.

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Courses Taught:

Undergraduate Courses: (These were taught both at the University of Texas & the American University in Dubai)

1. *College Algebra (Developmental Mathematics),*
2. *Pre-Calculus, Differential and Integral Calculus,*
3. *Calculus for Business,*
4. *Mathematics for the Arts,*
5. *Calculus I, II & III,*
6. *Linear Algebra,*
7. *Probability Theory,*
8. *Discrete Mathematics,*
9. *Ordinary Differential Equations,*
10. *Foundations of Mathematics,*
11. *Real Analysis I & II,*
12. *Complex Analysis.*

Graduate Courses: (These were taught at the University of Texas)

1. *Measure & Integration,*
2. *Abstract Algebra,*
3. *Algebraic Topology,*
4. *Introduction to PDEs.*

Curriculum

From the Fall of 2007 until the Spring of 2009, I have been the Chair of the Mathematics Undergraduate Curriculum Committee at the University of Texas. In the American University in Dubai, I served as the Coordinator of the Mathematics Division for three years and I served on the College of Arts & Sciences Curriculum Committee, on the Promotion Committee and on the Leadership Committee.

Research

My research focuses on Theory and Applications of Partial Differential Equations and Complex Analysis. More precisely on Boundary Values of Solutions of Complex Vector Fields. So far, I have 8 published research papers in refereed mathematical journals, some of which are high ranking (see Publications below) and 1 paper submitted for publication.

Mathematical Reviewer

- **Referee** for the Journal "*Complex Variables and Elliptic Equations*".
- **Reviewer** for the journal "*Geometry and Physics*" which is published by ElSEVIER.
- **Reviewer** for the journal "*Mathematical Reviews*" which is published by the University of Michigan, Ann Arbor.

Publications

(1) Z. Adwan, G. Hoepfner and Andrew Raich: Global L^q -Gevrey Functions and Their Applications, **Journal of Geometric Analysis**, DOI 10.1007/s12220-016-9743-6, **2017**.

(2) Z. Adwan and G. Hoepfner: Denjoy-Carleman Classes: Boundary Values, Approximate Solutions and Applications, **Journal of Geometric Analysis**, DOI 10.1007/s12220-014-9491-4, **April 2014**.

(3) Z. Adwan and S. Berhanu: On microlocal analyticity and smoothness of solutions of first-order nonlinear pdes, **Mathematische Annalen**, Vol. 352 (**2012**), 239-258.

(4) Z. Adwan and G. Hoepfner: Approximate Solutions and Micro-Regularity in the Denjoy-Carleman Classes, **J. Differential Equations** 249 (**2010**) 2269–2286.

(5) Z. Adwan and G. Hoepfner: *A Generalization of Borel's Theorem and Microlocal Gevrey Regularity in Involutive Structures*, **J. Differential Equations** 245 (**2008**), 2846-2870.

(6) Z. Adwan and G. Hoepfner: *On the C^∞ Wave-front Set of Traces of CR Functions on Totally Real Submanifolds*, **Proceedings of the American Mathematical Society** 136 (**2008**), no. 3, 999-1008.

(7) Z. Adwan and S. Berhanu: *Edge-of-the-Wedge Theory in Involutive Structures*, **Asian Journal of Mathematics**, 11 (**2007**), no. 1, 1-17.

(8) Z. Adwan: *The Exceptional Lie Group* E_8, **Advances in Applied Clifford Algebras**, Vol. 14, (2), 253-284, **2004**.

Professional Development

June 27-July 1, 2016: **Invited Speaker**: CR Geometry and PDE's VII. Dedicated to the memory of Giuseppe Zampieri. Levico T. (Trento) Italy.

April 14, 2015: **Invited Speaker**: *Weekly Mathematics Seminar at AUS*, American University of Sharjah, Sharjah, UAE.

April 02-05, 2015: **Participant**: *Second International Conference on Mathematics and Statistics*, American University of Sharjah, Sharjah, UAE.

March 14, 2015: **Speaker**, UAE Math Day, Paris Sorbonne University, Abu Dhabi.

January 04-08, 2015: **Invited Speaker**: *Analysis and Geometry in Several Complex Variables, Texas A&M University.*

January 09, 2014: **Invited Participant**: *Student Evaluation and Grading: Challenges and Best Practices*, American University in Dubai, Dubai, UAE.

August 29, 2013: **Invited Participant**: *New Teaching and Learning Technologies*, American University in Dubai, Dubai, UAE.

August 01-05, 2011: **Invited Participant**: *Geometric Analysis of PDE and Several Complex Variables*, Serra Negra, SP, Brazil.

January 13-14, 2011: **Invited Participant**: *NSF Analysis Workshop "*Active Learning Materials for Critical Thinking in a First Course in Real Analysis", University of Texas at Arlington, Arlington, Texas.

August 12-13, 2010: **Invited Speaker**: *NSF Analysis Workshop "*Active Learning Materials for Critical Thinking in a First Course in Real Analysis", University of Texas at Arlington, Arlington, Texas.

May 10-14, 2010: **Invited Speaker**: *Geometric Analysis of Several Complex Variables and related topics*, Marrakech, Morocco.

August 3-7, 2009: **Invited Speaker**: *Workshop on recent developments*

in several complex variables and partial differential equations, Serra Negra, SP, Brazil.

July 6-10, 2009: **Invited Speaker**: *International Conference on Several Complex Variables, Complex Geometry and Partial Differential Equations*, Wuhan University, Wuhan, China. Title: "Microlocal Analysis in C^M Involutive Structures".

June 06, 2008: **Invited Speaker**: *First Joint Meeting of the American Mathematical Society and the Brazilian Mathematical Society*, June 4th – 7th, Rio De Janeiro, Brazil. Title: "Microlocal Gevrey Regularity in Involutive Structures".

April 30, 2007: **Invited Speaker**: *Analysis Seminar at Temple University.* Title: "On Gevrey Wave-front Sets in Gevrey Involutive Structures".

June 11-16, 2006: **Invited Speaker**: *International Conference in PDE, Complex Analysis, and Differential Geometry*, University of Notre Dame, IN, USA. **Title**: *Edge of the Wedge Theory in Involutive Structures.*

January 23-27, 2006: **Invited Participant**: *II Escola Brasiliera de Equações Diferenciais*, IMPA, Rio de Janeiro, RJ, Brazil

August 01-05, 2005: **Invited Participant**: *III Workshop on Geometric AnalysisofPDEandSeveralComplexVariables*,SerraNegra,SP,Brazil.

April 08-10, 2005: **Invited Participant**: *A Conference Celebrating the Mathematics and 75th Birthday of Francois Treves*, Rutgers University, NJ,USA.

References

1. Shiferaw Berhanu, Professor of Mathematics, University of Maryland, College Park, MD.
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2. Hamid Meziani, Chair and Professor of Mathematics, Florida International University, Miami, Fl.
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3. Haitham Solh, Professor of Mathematics, American University in Dubai, Dubai, UAE.
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4. Taeil Yi, Professor of Mathematics, University of Texas Rio Grande Valley, Brownsville, TX.
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