Ibrahim A. Jawarneh

Nationality: Jordanian
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Interests:

• Algebraic Topology • General Topology • Fuzzy Topology
• Applications of the Algebraic Topology in Dynamical Systems
• Modeling and Simulation. •Dynamical Systems.

Education

1. **Ph.D in Mathematics** - New Mexico State University, USA, May 11, 2018.
   Major Field: Algebraic Topology and its Applications.
2. **Master in Mathematics** - New Mexico State University, USA, December 15, 2015.
3. **Master in Mathematics** - Al al-Bayt University, Jordan, June, 2005.
4. **Bachelor in Mathematics** -Yarmouk University, Jordan, June, 2001.

Experiences

1. 24/8/2022 - until now. Associate Professor at Al-Hussein Bin Talal University.
2. 14/8/2018 - 23/8/2022. Assistant Professor at Al-Hussein Bin Talal University - Jordan, I have taught:
   • General Topology for graduate (Master program).
   • Topology for undergraduate.
   • Abstract Algebra I.
   • Abstract Algebra II.
   • Calculus I (**Coordinator**).
   • Calculus II (**Coordinator**).
   • Calculus III-The University of Jordan (Summer Semester 2019/2020).
   • Calculus IV.
   • Linear Algebra I.
3. 2014 - 2018. Graduate Assistant at New Mexico State University - USA, I have taught:
   • Math 120 (Intermediate Algebra).
   • Math 142 (BUS/BIOL Calculus).
   • Calculus I .
   • Calculus II.
   • Stat 251(STAT – BSN/BHVRL SCNCS).
   • Stat 271 Statistics for Psychological Sciences.
4. 2006 - 2013. Lecturer at Taif University - KSA, I have taught:
   • Calculus I.
   • Calculus II.
   • Calculus III.
   • College Algebra.

- Complex Analysis.
- Differential Equations.
- Euclidean Geometry.
- Statistics and Probability for Science.
- Mathematical Statistics.
- BioStatistics for Medicine and Pharmacy Colleges.

5. 2001 - 2006. Teacher of Mathematics in Public schools in Jordan.
6. **Note**: I can teach the following Courses:
   - Physics (Mechanics).
   - Physics (Oscillations and mechanical waves).
   - Dynamical systems for mathematics, physics and engineering.

Certificates and Training

1. ICDL (Basic skills in computer science). Jordan-UN.
2. Intel (1) and Intel (0+1) (Teaching for future by using computer) - Jordan.
3. Methods and strategies of assessing students - Taif University - KSA.
4. Methods and strategies of university teaching - Taif University - KSA.
5. Developing skills of effective communication - Taif University - KSA.
6. Principles and guidelines of building a university syllabus - Taif University - KSA.

Supervising Theses(Master Degree)

1. Doha Barham, "A Modified Van Der Pol Oscillator: A Topological Method Approach". **April, 2021**.
2. Shahed Abourotha, "Quotient Topology in A Generalized Topology". **May, 2021**.
3. Mohammad Al-Hazaimeh, "Complex Fuzzy Topological Space on A Complex Fuzzy Space". **May, 2021**.
4. Ahmed Badarneh, "Compact and Lindelof spaces in A Generalized Topology". **August, 2021**.
5. Moumin Bni Amer "Complex Bipolar Multi-Fuzzy Sets". **January, 2022**.
6. Ahmad Abd Alnabi "Hyper Q-fuzzy HX Groups". **May, 2022**.

Projects

1. "Complex fuzzy topological space on a complex fuzzy space" AL-Hussein Bin Talal University-Research Fund. Project number 111/2021.

Scholarship

1. Scholarship from Al-Hussein Bin Talal University-Jordan to complete Ph.D. degree in USA
2. Scholarship from NMSU-USA-Ph.D. program.

Publications

1. Zuhier Altawallbeh, Ahmad Badarneh, **Ibrahim Jawarneh**, Emad Az-Zo'bi. Weakly and Nearly Countably Compactness in Generalized Topology. Axioms, 12(2), 122, **2023**. **Scopus(Q1)**
2. **Ibrahim Jawarneh** and Zuhier Altawallbeh. Hopf Bifurcations in Dynamical Systems Via Algebraic Topological Method. Matematicki Vesnik, **2022**. Accepted. **Scopus(Q3)**
3. **Ibrahim Jawarneh** and Zuhier Altawallbeh. A Heteroclinic Bifurcation in A Motion of Pendulum: Numerical-Topological Approach. International Journal of Applied and Computational Mathematics, 8(3): 1-14, **2022**. **Scopus(Q2)**
4. Nesreen Alsharman, Adeeb Saaidah, Omar Almomani, **Ibrahim Jawarneh** and Laila Al-Qaisi. Pattern Mathematical Model for Fingerprint Security Using Bifurcations Minutiae-Extraction and Neural Network Feature Selection. Security and Communication Networks, 2022: 1-16, **2022**. **Scopus(Q2)**
5. **Ibrahim Jawarneh** and Nesreen Alsharman. The Classification of Arch Fingerprint Using Mathematical Model and Deep Learning Features Selection. International Journal of Mathematics and Computer Science, 17(1): 289–307, **2022**. **Scopus(Q3)**
6. Zuhier Altawallbeh and **Ibrahim Jawarneh**. μ-Countably Compactness and $\mu\mathcal{H}$-Countably Compactness. Communications of the Korean Mathematical Society, 37(1): 269–277, **2022**. **Scopus(Q3)**
7. **Ibrahim Jawarneh** and Nesreen Alsharman. The Mathematical Model and Deep Learning Features Selection for Whorl Fingerprint Classifications. International Journal of Computational Intelligence Systems, 14(1):1208-1216, **2021**. **Scopus(Q1)**
8. Mary Ballyk, Ross Staffeldt and **Ibrahim Jawarneh**. A nutrient-prey-predator model: Stability and bifurcations. Discrete and Continuous Dynamical Systems - Series S, 13(11):2975-3004, **2020**. **Scopus(Q2)**
9. Nesreen Alsharman and **Ibrahim Jawarneh**. GoogleNet CNN Neural Network towards Chest CT-Coronavirus Medical Image Classification. Journal of Computer Science, 16(5):620-625, **2020**. **Scopus(Q4)**

Conferences

1. **2nd International Conference on Mathematical and Related Sciences (ICMRS 2019) - Antalya-Turkey**. Detecting Biological Connections Between Some Equilibria in a Nutrient Prey-Predator Model by Homology Conley Index Method.

2. **NeSA 9th International Conference - NMSU-USA**, April 1st, **2017**: Dynamical Systems and Conley Topological Index I. I explained the general idea of Conley index where the rigorous numerical computation can be combined with topological methods to study existence and dynamics of families of solutions of dynamical systems which are often described by differential equations with parameters.
3. **Graduate Research and Art Symposium (GRAS), NMSU-USA**, April 7th, **2017**, Dynamical Systems and Conley's Topological Index II. I explained the idea of Conley index and its applications in physics and mechanical engineering. Nonlinear phenomena in physics and engineering are often described by differential equations with parameters, and the study of changes in the solution structure of such equations is essential for a good understanding of the phenomena.
4. **20th Joint UTEP/NMSU-USA**. Workshop on Mathematics, Computer Science, and Computational Sciences, April 8th, **2017**, Dynamical Systems and Conley Topological Index III. I explained how we can capture the heteroclinic saddle connection in a dynamical system using the connection matrices which based on Conley index.

Thank You