

# Dr. Amani Raiyan

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**Academic Title & Current Position:** Assistant Professor of Mathematics & Mathematics Education

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## Bio

Dr. Amani Rayyan is an Assistant Professor of Mathematics and Mathematics Education with extensive experience teaching and supervising at several universities in Palestine and abroad. As a MEPLI Fellow at Harvard University, she deepens her research on STEM-based instructional design and the use of emerging technologies in education. She is recognized for her academic leadership in organizing and chairing national and international conferences, with a special focus on preparing innovative mathematics teachers. Passionate about advancing educational policy, STEM integration, and responsible AI in teaching, Dr. Rayyan continues to build research capacity and foster academic excellence through her institutional and regional initiatives. She serves on the University Scientific Research Council and is the founding director of the *Scientific Research Empowerment Center (REACH)* at Al-Quds Open University.



## Education

01/2023

**MEPLI 2023 | Convener**  
**Harvard Graduate School of Education**

01/2022 – 01/2023

**MEPLI 2022 | Fellow**  
**Harvard Graduate School of Education**

01/2016 – 01/2019 IRBID, JORDAN

**Methodology of Teaching Mathematics | PhD**  
**Yarmouk University**

**Thesis Title:** Developing an Instructional Unit Based on Performance Tasks and its Effect on Mathematical Proficiency and Comognitive Discourse Among 5th Graders.

**Cumulative average:**  
**91.4%**



## Education

01/2012 – 01/2014 JERUSALEM, PALESTINE

**Methodology of Teaching Mathematics | M.A**

**Al-Quds University – Al-Quds Bard College**

Graduation Project: *Effect of Using Active Learning on the Eighth Graders' Learning in Integers*

*Cumulative Average: 92.5%*

01/2002 – 01/2006 RAMALLAH, PALESTINE

**Methodology of Teaching Mathematics | B.A.**

**Educational Sciences Faculty**

*Cumulative Average: 90.3%*



## Work Experience

01/2025 – RAMALLAH, PALESTINE

**STEAM Consultant**  
**Teach for Palestine**

Providing strategic guidance in STEAM integration across national initiatives, designing activities, and supporting capacity-building for mathematics and science teachers.

01/2022 – PRESENT JERUSALEM, PALESTINE

**Visiting Professor**  
**Al-Quds Bard College (MAT Program)**

Teaching graduate-level courses in the Master of Arts in Teaching (MAT) program, mentoring future educators, and contributing to program development in mathematics education and educational technology.

JERUSALEM, PALESTINE

**Visiting Professor**  
**Al-Quds University – Graduate Studies Faculty**

Delivering advanced seminars, supervising postgraduate research, and collaborating on strategic initiatives in STEM education and research capacity building.



## Work Experience

01/2015 – PRESENT JERI, PALESTINE

### **Assistant Professor of Mathematics & Mathematics Education Alquds Open University**

Teaching undergraduate and graduate courses; supervising theses; developing STEAM-based curricula; leading research and policy initiatives at university and national level.

01/2010 – 01/2015 PALESTINE

### **Lecturer / Teacher Educator Al-Quds Open University**

Taught mathematics pedagogy and educational technology courses for pre-service teachers, supervised practicum, and contributed to curriculum development.

01/2006 – 01/2014 PALESTINE

### **Mathematics Teacher Public and Private Schools**

Taught mathematics in middle and secondary schools, incorporating problem-solving and technology-enhanced learning activities.



## Research Interests

- Developed and implemented STEM, STEAM, and STERAM approaches, which enhanced interdisciplinary learning and engagement among students.
- Focused on elementary and early childhood education, helping to lay a strong foundational understanding for young learners.
- Advanced early algebrization and mathematical thinking, which improved students' problem-solving skills and readiness for higher-level math.
- Designed learning experiences based on performance-based tasks, making assessments more relevant and reflective of real-world applications.
- Facilitated assessment and commognitive discourse, which encouraged deeper conversations about learning and fostered a collaborative classroom environment.
- Integrated technology in teaching and learning, helping to modernize the classroom and improve student engagement through interactive tools.
- Led curriculum design and contributed to educational policy, ensuring that programs met the evolving needs of students and educators alike.
- Focused on teacher education and professional development, which supported educators in enhancing their skills and effectively implementing new teaching strategies.



## Publications

01/2025

### **Mathematical problem solving strategies among elementary school students Mathematical Teaching Research Journal**

ISSN: 2573-4377

Raiyan, A., Omar, M., Aboushi, M., Herzallah, H., & Barajjia,

01/2025

### **Improving geometric thinking skills through a multisensory-based CRA framework in students with learning difficulties and various sensory preferences**

**Educational Process: International Journal, 16, e2025255.**

<https://doi.org/10.22521/edupij.2025.16.255>

Melhem, D. Z., Al-Zoubi, A. M., Al-Shannaq, M. M., Raiyan, A. S. H., & Melhem, H.

01/2024

### **The effectiveness of mathematical modeling in developing problem solving skills and self-efficacy in mathematics among sixth grade students in Palestine** **Pakistan Journal of Life and Social Sciences, 22(2), 7793–7808**

<https://doi.org/10.57239/PJLSS-2024-22.2.00587>

Omar, M., Raiyan, A., Shanaa, H., & Aboushi, M.

01/2019

### **Developing an instructional unit based on performance tasks and its effect on mathematical proficiency among 5th graders.**

**Journal of Al-Quds Open University for Educational & Psychological Research & Studies, 11(29), 186–197.**

Raiyan, A., Al-Zoubi, A., & Al-Barakat, A.

### **peer-Reviewe**

- *Previewer*, chapter “VLE’s in a Post-Covid World – Kuwait’s Universities”, in: *Challenges and Opportunities for the Global Implementation of E-Learning Frameworks*. IGI Global, USA.  
DOI:10.4018/978-1-7998-7607-6

- *Previewer*, study “The Effect of Error Analysis Based Learning on Proportional Reasoning Ability of Seventh Grade Students”.

<https://www.readcube.com/articles/10.3389/feduc.2022.89>



## Conferences

**2025 — Education through Hardship: Prospects for Palestinian Resilience and Creativity**



## Conferences

*Head of Preparatory Commission* | Organized by MEPLI in collaboration with Al-Quds Open University (25/10/2025)

### 2025 — Social Emotional Learning: Between Theory and Practice

*Scientific Committee Member and Chairperson of the first session* | Organized by Al-Quds University in partnership with the Palestinian Teachers Union (23/8/2025)

### 2024 — MEPLI Fellowship Second Conference – Graduate School of Education, Harvard University

*Attendee* | Amman, Jordan (10–11/05/2024)

### 2023 — MEPLI Fellowship First Conference – Graduate School of Education, Harvard University

*Attendee* | Amman, Jordan (27/08/2023)

### 2023 — The Second Palestinian Educational Creativity Conference: Educational Creativity and Its Role in Sustainable Development

*Scientific Commission Member* | Organized by Palestinian Creativity International Foundation & Higher Council for Creativity and Excellence (Istanbul, 08/09/2023)

### 2023 — Jerusalem Ambassadors III: Public Education in Palestine: Problems and Solutions

*Scientific Committee Member* | Organized by Al-Quds University & SOFARAA for Professional Development (4–5/02/2023)

### 2019 — Development of the Inspection System in Palestine

*Organizer (First Day)* | Organized by Palestinian Ministry of Labor (24–25/11/2019)

### 2019 — Higher Education in the Arab World: Problems and Solutions

*Attendee* | Organized by Yarmouk University (02/04/2019)

### 2017 — School Dropout Conference

*Head of Preparatory Commission* | Organized by UNRWA (December 2017)

### 2014 — Developing Teaching and Learning Mathematics in Palestine

*Presenter – Educational Paper on Active Learning* | Organized by the Palestinian Commission for Mathematics (RAFA'H) (April 2014)



## Projects

01/2023 – 01/2024 RAMALLAH, PALESTINE

**Prepared professional training resources for the Teach for Palestine Foundation to equip Grades 1–4 teachers with tools to develop and teach STEAM-based instructional content.**

**Development of STEAM Training Materials**

01/2023 – 01/2024 RAMALLAH, PALESTINE

**Designed and implemented training workshops for elementary school teachers (Grades 1–4) on integrating critical thinking into classroom practices as part of a STEAM-based teaching project for Teach for Palestine.**

**Critical Thinking & STEAM Classroom Activation Project**



## Committees & Professional Memberships

- **Founding Director, Scientific Research Empowerment Center (REACH) – Al-Quds Open University (2025 – Present)**
- **Member, Scientific Research Council – Al-Quds Open University (2025 – Present)**
- **Member, Jericho Municipality Council (2022 – Present)**
- **Member, STEAM Team, Al-Quds Open University (2020 – Present)**
- **Member, Advisory Board of the Jericho Directorate of Culture (2019 – Present)**
- **Member, Creativity and Excellence Fund Initiatives Committee – Ministry of Education (since 02/12/2020)**
- **Member, Scientific Committee – Second Palestinian Educational Creativity Conference (Istanbul, Turkey) (9–10/08/2023)**
- **Member, General Mathematics Book Review Committee – Al-Quds Open University (2019)**
- **Head, Judgment Commission for Private Sector Teacher Initiatives (09/04/2019)**
- **Member, 22nd Cohort Graduation Committee (2019)**
- **Member, Primary Stage Specialization Council – Al-Quds Open University (2019 – 2023)**
- **Member, Graduation Projects Committees – College of Educational Sciences (2016 – Present)**



## Training, Workshops & Capacity-Building Projects



## Training, Workshops & Capacity-Building Projects

- **Preparing STEAM Training Materials for Teachers (Grades 1–4)** — Teach for Palestine (*Designer/Consultant, 2023*)
- **Training Teachers (Grades 1–4) to Teach Critical Thinking using STEAM Approach** — Teach for Palestine (*Lead Trainer/Project Consultant, 2023*)
- **Advanced Critical Thinking** — Students of Advanced Operations Leadership, General Military Training Commission (*Trainer, 06/12/2023*)
- **Training Teachers & Students to Activate STREAM Approach in Teaching** — Future Pioneers School, Jericho (*Trainer, 12/05/2023*)
- **Member of STEAM Team Preparing Reference Plans to Activate STEAM in Classrooms** — QOU (*Contributor, 2023*)
- **Active Learning & Critical Thinking** — MEPLI Fellowship Workshop, Al-Qattan Foundation (*Trainer, 15/10/2022*)
- **Critical Thinking** — Senior Leadership Training, General Military Training Commission (*Lecturer, 11/07/2021*)
- **Training Teachers & Students on STEAM Approach** — Samou' Municipality (*Trainer, 25–27/07/2021*)
- **Training Teachers & Students on STEAM Approach** — Tubas Directorate of Education (*Trainer, 14/08/2021*)
- **Training Teachers & Students on STEAM Approach** — Salfit Directorate of Education (*Trainer, 15/08/2021*)
- **Learning Loss Webinar** — Harvard Graduate School of Education (*Main Speaker, 26/07/2021*)
- **Critical Thinking** — Middle Leadership Training, General Military Training Commission (*Lecturer, 23/02/2021*)
- **Encouraging Students to Think Using STEAM** — MEPLI Fellowship (Virtual) (*Participant, 12/04/2023*)
- **Technology Integration in Higher Education** — Al-Najah National University (Virtual) (*Participant, 16/12/2020*)
- **Employing Technology in Teaching Courses** — QOU (Virtual) (*Participant, 24/06/2020*)
- **How to Write Qualitative Research** — QOU (Virtual) (*Participant, 29/11/2020*)
- **Standards for the Quality of Traditional & E-Learning in Educational Institutions** — University of Dhi Qar (Virtual) (*Participant, 09/05/2020*)
- **Authentic Assessment** — Future Pioneers Model School (*Trainer, 04/01/2018*)
- **Practical Education: Partnership & Integration** — QOU (*Participant, 25/03/2019*)
- **Developing Mathematics Teaching & Learning** — RAFAH (*Participant, 10/10/2018*)
- **Educational Design Course** — QOU (*Participant, 22/08/2018*)
- **Using Backward Design to Prepare Better**



## Training, Workshops & Capacity-Building Projects

- **Classes** — UNRWA (*Participant, Feb 2015*)
- **Applying Human Rights in Teaching** — UNRWA (*Participant, May 2013*)
- **Activating Active Learning in Classroom** — UNRWA (*Participant, 2009*)
- **Computer Training** — Educational Science Faculty (*Participant, 2006*)
- **Civic Education & Democratic Development** — Civil Forum Foundation (*Participant, 2005*)
- **First Aid** — Palestinian Medical Relief (*Participant, 1999*)



## Thesis & Dissertation Committees

- **Teaching Practices According to 21st-Century Requirements among Mathematics Teachers in South Hebron Directorate and Their Relation to Their Professional Competencies**, *Supervisor* – Researcher: Islam Sharawna, Al-Quds University (*Defended: 28/04/2025*)
- **Inclusion of Mathematical Proficiency Components in Palestinian Mathematics Textbooks (Basic Stage)**, *Supervisor* – Researcher: Sajeda Rajoub, Al-Quds University (*Defended: 13/01/2025*)
- **The Effect of the Scientific Stations Strategy on Developing Geometric Thinking Skills and Motivation among Fifth-Grade Female Students in Palestine**, *External Examiner* – Researcher: Ruba Akawanim, Al-Quds University (*Defended: 23/05/2024*)
- **Distance Learning Engagement among Master's Students in Mathematics Teaching Methods and Mathematics at An-Najah National University**, *External Examiner* – Researcher: Nardeen Hamad, An-Najah National University (*Defended: 07/07/2022*)
- **Analysis of the Palestinian 8th Grade Mathematics Textbook According to the California Common Core State Standards**, *External Examiner* – Researcher: Naveen Nairat, An-Najah National University (*Defended: 17/08/2022*)
- **Spatial Reasoning and Its Relationship to Mathematical Sense among Seventh-Grade Students in Palestine**, *External Examiner* – Researcher: Runza Zahour, Al-Quds University (*Defended: 04/01/2022*)
- **Analysis of the Palestinian 8th Grade**



## Thesis & Dissertation Committees

**Mathematics Textbook According to the American Common Core State Standards, *External Examiner*** – Researcher: Enas Al-Qasem, An-Najah National University (*Defended: 09/03/2022*)

- **Perceptions of Mathematics Teachers in Hebron Governorate toward Electronic Educational Platforms and Their Relationship to Their Teaching Competencies, *External Examiner*** – Researcher: Intisar Shahatit, Al-Quds University (*Defended: 24/03/2021*)



## Teaching Experience

Dr. Amani Rayyan has extensive university teaching experience across both undergraduate and graduate programs. She has taught a wide range of courses in mathematics (Calculus I & II, General Mathematics, Euclidean Geometry, Coordinate Geometry, Vector Analysis, Linear and Abstract Algebra, Numerical Analysis, Applied Statistics, and Principles of Statistics), mathematics education (Methods of Teaching Mathematics I & II, Mathematics Methodology, Curriculum Development, Classroom Management, Assessment in Teaching and Learning, Educational Technology, Teaching Design, General Teaching and Training Methods), and research-focused courses (Research Methodology, Learn How to Learn). At the master's level, she teaches advanced courses in Statistics and Modeling, Educational Planning, Contemporary Issues in E-Learning, and Research Methodology for students specializing in Educational Technology, Educational Administration and Supervision, and Mathematics Curriculum and Teaching Methods.



## Awards

**Award of Appreciation from the President of Al-Quds Open University** for her active contribution in supervising and implementing STEAM summer camps in partnership with the local community (*Summer 2021*)