

# Abdelhamid Khodja

American University of Sharjah, Sharjah, UAE

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## EDUCATION

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### B.S. in Biology

2020-present

American University of Sharjah (AUS), Sharjah, UAE

- Expected Graduation: 2024
- Cumulative GPA: 3.82/4.0
- Academic interests: pharmacology, molecular biology, drug design, computational biology, and computational chemistry.
- Research Projects: Antibacterial Nanoparticle Cellulose Fabrics for Self-Disinfection & Hybrid Antimicrobial Composites.

## AWARDS AND HONORS

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|--|-----------------------|
| • AUS Class of Spring 2024 Valedictorian             | Spring 2024           |
| • College of Arts and Science Spring 2024 Ambassador | Spring 2024           |
| • Chancellors List Scholarship, AUS                  | Fall 2023-Spring 2024 |
| • Short Listed for Sheikh Khalifa Scholarship, AUS   | Spring 2023           |
| • Du Endowed Scholarship, AUS                        | 2022-2024             |
| • Dean's List Scholarship, AUS                       | Spring 2022-2024      |
| • Alpha Lambda Delta Honor Society, AUS              | 2021                  |
| • Financial Grant Award, AUS                         | 2020-2024             |
| • Outstanding Student Scholarship, AUS               | 2020-2024             |

## GRANTS

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|---|-------------|
| • College of Arts and Sciences Undergraduate Research Grant | Spring 2024 |
| • QUWA Research & Innovation Grant                          | Fall 2023   |
| • College of Arts and Sciences Undergraduate Research Grant | Spring 2023 |

## PUBLICATIONS

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Makhlouf, Z., Khan, D., Terro, T., **Khodja, A.**, *et al.* Introducing antimicrobial activity into cellulose fibers using carbon dots: A step towards self-disinfecting fabric. *ACS Regional MEA Conference* (2024)

Siddiqui, R., **Khodja, A.**, Ibrahim, T. *et al.* The increasing importance of novel deep eutectic solvents as potential effective antimicrobials and other medicinal properties. *World J Microbiol Biotechnol* 39, 330 (2023). <https://doi.org/10.1007/s11274-023-03760-8>

## FEATURED WORKS

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- Our work on the development of self-disinfectant fabrics was featured in **MIT Technology Review Arabia** (2023): <https://technologyreview.ae/باحثون-من-الجامعة-الأميركية-بالشارقة/>
- Our work on the modification of cellulose-fibers with antibacterial nanoparticles was featured in **Al Khaleej News** (2023): <https://www.alkhaleej.ae/2023-11-21/باحثون-في-أمريكية-الشارقة-يطورون-أقمشة-ذاتية-التطهير-التربوية-والتعليم-أخبار-الدار>
- Our work on constructing nanomaterials for healthcare applications and environmental remediation was featured in **AUS News** (2023): <https://www.aus.edu/media/news/aus-researchers-develop-materials-for-environmental-and-health-advancements>

## CONFERENCES & TALKS

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- May 2024 – “*Enhancing Cellulose Fibers with Carbon Dots for Antimicrobial Properties*”  
Student Research Conference on Mathematics and Related Areas, AUS
- February 2024 – “*Introducing Antimicrobial Activity into Cellulose Fibers using Carbon Dots: A Step Towards Self-Disinfecting Fabric*”  
American Chemical Society (ACS) Regional Middle East and Africa Conference, New York University Abu Dhabi
- September 2023 – “*Carbon Dot-Modified Cellulose Fibers: Advancements in the Pursuit of Self-Disinfecting Textiles*”  
College of Arts and Sciences Research Day, AUS
- August 2023 – “*Cellulose Fibers Modified with Carbon Dots: A Promising Approach for Development of Self-Disinfecting Fabrics*”  
The Fourth Forum for Women in Research, University of Sharjah
- January 2023 – “*Excelling In Chemistry: Learning to Master Organic Chemistry*”  
American Chemical Society (ACS) - AUS Student Chapter, AUS

## EXPERIENCE

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### BCE Learning Center Academic Tutor

August 2023-present

Department of Biology, Chemistry, and Environmental Sciences (BCE)

College of Arts and Sciences (CAS), AUS

- Provide tutoring support for multiple courses including General Biology I (BIO 101), General Biology II (BIO 102), Introduction to Human Biology (BIO 103), General Chemistry I (CHM 101), Organic Chemistry I (CHM 215), and Organic Chemistry II (CHM 216).
- Successfully tutored over 250+ students with diverse academic backgrounds.
- Instruct students on creating effective study systems, emphasizing prioritization of active learning over passive methods, and guiding students towards adopting efficient study habits.

### Undergraduate Research Assistant

March 2023-present

Supramolecular & Nano-Chemistry Group (SNCG)

Department of Biology, Chemistry, and Environmental Sciences (BCE)

College of Arts and Sciences (CAS), AUS

- Assistant to Dr. Mohammad Al-Sayah, Head of SNCG
- Research interests: chemical biology, biochemical sensors, functional materials for biological application, polymers, and self-assembled nanostructures.
- Awarded the CAS Undergraduate Research Grant (2024) for our project entitled *“Development of CD-PDA Hybrid Composites on Cellulose and Polyester Fabrics for Enhanced Antimicrobial Textiles”*.
- Awarded the QUWA Research & Innovation Grant (2023) for our project entitled *“Cellulose Fibers Modified with Carbon Dots: A Promising Approach for Development of Self-Disinfecting Fabrics”*.
- Awarded the CAS Undergraduate Research Grant (2023) for our project entitled *“Modification of Cellulose-Based Fibers with Antibacterial Nanoparticles for Development of Self-Disinfectant Fabrics”*.

### **Lab Assistant**

October 2021-2022

Neuroanatomy Laboratory

Department of Biology, Chemistry, and Environmental Sciences (BCE)

College of Arts and Sciences (CAS), AUS

- Assistant to Dr. Reem Khalil, Head of the Neuroanatomy Laboratory
- Research interests: neurophysiology, neuroanatomy, and development of visual circuits in the mammalian visual cortex.
- Investigated the organization and operational characteristics of neural circuits within the mammalian visual cortex, with a particular emphasis on their developmental aspects.
- Involved in unraveling the intricate relationships between neural connections across various visual regions and the physiological maturation of these circuitry.

### **COVID-19 Vaccine Campaign Volunteer**

March-Sept. 2021

King Fahd University of Petroleum and Minerals (KFUPM)

Dhahran, Saudi Arabia

- +170 volunteering hours
- Supported the efforts to distribute the Pfizer-BioNTech and AstraZeneca COVID-19 vaccines through involvement in the organization and planning process.
- Worked with patients to ensure a smooth and efficient experience at the KFUPM vaccine center, providing them with guidance and support throughout the process.
- Collaborated closely with the lead clinician and the rest of the clinic staff on a daily basis.
- Received a certificate of participation.

### **SKILLS**

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- **Wet lab:** staining, culture preparation, culture isolation, smear preparation, plating techniques, cell culture maintenance, and ultracentrifugation
- **Major lab equipment:**
  - Rotatory Evaporator (Rotovap)
  - UV/VIS Microplate Spectrophotometer
  - Fourier-Transform Infrared Spectroscopy (FTIR)
  - Fluorescence Spectroscopy

- Compresstome VF-310-0Z vibrating microtome (under supervision)
- Carl Zeiss Axio Imager M2 Microscope (under training)
- **Computer**
  - Python (general-purpose programming language); Beginner
  - R (programming language for statistical computing and graphics); Beginner
  - Adobe After Effects, Adobe Premiere Pro, Adobe Photoshop, and Adobe Media Encoder (visual effects and motion graphics software); Experienced
  - Maxon Cinema 4D, Blender, Octane Render (3D modeling software); Experienced
  - MS Word, MS Excel, MS PowerPoint; Experienced
- **Languages**
  - Arabic (native)
  - English (fluent)
  - French (beginner)

## COURSES & CERTIFICATES

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- Machine Learning Specialization – DeepLearning.ai & Stanford University, 2024 (In progress)
- Disease Modeling and Target Discovery – Insilico Medicine, 2024
- R Programming for Biologists – NSTC, 2023

## EXTRACURRICULAR ACTIVITIES

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### Science Educator

November 2019-present

YouTube Channel

- Channel Link: <https://www.youtube.com/@abdelhamidkhodja>
- I often find that biology and organic chemistry are taught without purpose or relevance causing people to lose interest in the subject.
- My goal is to help students approach the subjects systematically to prioritize understanding over aimless memorization.

### Public Relations Coordinator

July 2022-May 2023

American Chemical Society (ACS) – AUS Student Chapter

- Coordinating all external communications with sponsors and partners.
- Coordinating all internal communications with AUS chapter members, faculty, and staff.
- Responsible for promoting ACS and its activities within the local academic community.
- Responsible for arranging for guest and keynote speakers.
- Operating and managing the ACS Chemistry Helpline WhatsApp Group which provides free chemistry help to 130+ students.

### President, College of Arts and Sciences Student Team

May 2022-May 2023

College of Arts and Sciences, AUS

- Assisting the Associate Dean in preparing event proposals and budget requests.
- Facilitating the smooth functioning of the Team.
- Responsible for ensuring that the Team achieves its objectives.

- Addressing the concerns of the College of Arts and Sciences students.
- Responsible for ensuring the activities of the Team comply with AUS policies and procedures.
- Coordinating the recruitment of new members.

#### **Vice President, Neuroscience Society**

May 2022-May 2023

College of Arts and Sciences, AUS

- Assisting the President and acting on their behalf in their absence.
- Coordinating with Society members to ensure tasks are completed on time.
- Providing support and guidance to Society members about event planning and organization.
- Assisting in the recruitment of new members.

#### **Head of the Logistics Team**

Feb. 2022-Jan. 2023

Biology, Chemistry, and Environmental Sciences (BCE) Student Outreach Committee

College of Arts and Sciences, AUS

- Coordinating the organization of Committee events.
- Responsible for booking venues, ordering supplies, managing budgets and expenses, and communicating with Committee members, faculty advisors, and external partners.
- Responsible for ensuring the activities of the Committee comply with AUS policies and procedures, and for representing the Committee in the wider university community.

#### **Executive Secretary, College of Arts and Science Student Team**

Sept. 2021-May 2022

College of Arts and Sciences, AUS

- Assisted the Associate Dean in preparing event proposals and budget allocation
- Implemented a task-managing system that helped optimize the Team's productivity
- Maintained the Team's records.

#### **Founding President, Neuroscience Society**

April 2021-May 2022

College of Arts and Sciences, AUS

- Cofounded the Society.
- Led the Society to achieve its objectives during its first year.
- Promoted interdisciplinary dialogue in an inclusive learning environment.
- Coordinated all the tasks of the Society for a smooth beginning.

## **REFERENCES**

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- **Dr. Mohammad Al-Sayah**, *Professor*, Department of Biology, Chemistry, & Environmental (BCE), American University of Sharjah  
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- **Dr. Amin Majdalawieh**, *Professor*, Department of Biology, Chemistry, & Environmental (BCE), American University of Sharjah  
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- **Dr. Ahmad Aissa**, *Associate Dean*, College of Arts & Sciences (CAS), American University of Sharjah

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- **Dr. Sara Dalibalta**, *Associate Professor*, Department of Biology, Chemistry, & Environmental (BCE), American University of Sharjah  
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- **Dr. Reem Khalil**, *Associate Professor*, Department of Biology, Chemistry, & Environmental (BCE), American University of Sharjah  
[sdalibalta@aus.edu](mailto:sdalibalta@aus.edu); +971 6 515 4461