

Curriculum Vitae

Dr. Abdulraouf Mayyas



1. Personal Data

Name	Abdulraouf Salem Hussein Mayyas
Academic Position	Associate Professor
Specialization	1- Analytical Chemistry 2- Analytical Chemistry in Archaeology / Archaeometry (Archaeological Sciences)
Department	Department of Conservation Science
Faculty	Queen Rania Faculty of Tourism and Heritage
University	The Hashemite University
Office Number	E3146
Office Phone Number	<i>Jordan:</i> 05 3903333 (Ext 4910), <i>International:</i> 00962 (5) 3903333 (Ext 4910)
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Postal Code	13133
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E-mail	A_S_Mayyas@hotmail.com; A.S.Mayyas@hu.edu.jo
Nationality	Jordanian
Marital Status	Married
Place and Date of Birth	Jordan - 25 June 1974
Languages	Arabic and English
University Home Page	http://www.hu.edu.jo/fac/CV_E.aspx?Pid=10679 https://staff.hu.edu.jo/Default.aspx?id=5g/6ZIwgPMw= https://staff.hu.edu.jo/CV_e.aspx?id=5g/6ZIwgPMw=
Researcher Links	1- ResearchGate (R^G) https://www.researchgate.net/profile/Abdulraouf_s_Mayyas2 2- Google Scholar https://scholar.google.com/citations?user=UR6CsH4AAAAJ&hl=en 3- Open Researcher and Contributor ID (ORCID) 0000-0003-4274-7885

<https://orcid.org/0000-0003-4274-7885>

4- **Web of Science ResearcherID (WoS RID)**

<AAO-4928-2021>

<https://publons.com/researcher/4442416/abdulraouf-mayyas/>

2. Academic Degrees

1. PhD (2003 – 2007) in "Analytical Chemistry" - "Analytical Chemistry in Archaeology" / Archaeometry (Archaeological Sciences), Department of Archaeological Sciences (Archaeological and Forensic Sciences), Faculty of Life Sciences, University of Bradford, UK.
2. MSc (1996 – 1998) in Analytical Chemistry, Department of Chemistry, Faculty of Science, Yarmouk University, Jordan.
3. BSc (1992 – 1996) in General Chemistry, Department of Chemistry, Faculty of Science, Yarmouk University, Jordan.

3. Employment History (Experiences)

1. Visiting Associate Professor (09/09/2018 – now) in the Department of Medicinal Chemistry & Pharmacognosy / Faculty of Pharmacy at Jordan University of Science and Technology.
2. Associate Professor (23/05/2016 – now) in the Department of Conservation Science (DCS) / Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.
3. Chairman of the Department of Conservation Science (DCS) (September 2015 – September 2016)/ Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.
4. Assistant Professor (23/09/2007 – 23/05/2016) in the Department of Conservation Science (DCS) / Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.
5. Full-time Lecturer (2000 – 2003) in the Department of Medicinal Chemistry and Pharmacognosy / Faculty of Pharmacy at Jordan University of Science and Technology.
6. Teaching Assistant (1999 – 2000) in the Department of Chemistry / Faculty of Science at the Hashemite University.
7. Chemist (during 1999) in the Laboratories and Environmental Control at the Ministry of Water and Irrigation (Water Authority), Jordan.
8. Chemist (during 1999) in the Environment Health Directorate at the Ministry of Health, Jordan.
9. Teacher (1998 – 1999) in Al-Ramtha Education Directorate at the Ministry of Education.
10. Teaching Assistant (1996 – 1998) Teaching Assistant in the Department of Chemistry / Faculty of Science at Yarmouk University.

4. Membership in Committee/Professional Society

Inside the University:

1. Member of the **Queen Rania Faculty of Tourism and Heritage (QRFTH) Council** at the Hashemite University.
2. Member of the **Committee of the Instruments & Equipments** in Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.
3. Member of the **Committee of Contact with Student** in Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.
4. Member of the **Appointment & Promotion Committee** in Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.

5. Member of the **Scientific Research Committee** in Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.
6. Member of the **Course Plans and Table Committee** in Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.
7. Member of the **Athletic Committee** in Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.
8. Member of the **Scientific Day Committee** in Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.
9. Member of the **Consultant Committee** of the Third Conference (Daraat Urdoniah): Intangible Heritage in Jordan.
10. Member of the **Scientific Committee** of "*Conservation, Documentation and Management of Archaeological Sites: Challenges and New Approaches*" NARNIA, Conference at the Hashemite University.
11. Member of the **Scientific Committee** of the *First International Conference Titled in Tourism Management & Heritage Conservation* at the Hashemite University.

Outside the University:

1. Member of the Society of the **Friends of Archaeology & Heritage (FoAH)** in Jordan.
2. Member of **International Council on Monuments and Sites (ICOMOS)** in Jordan.
3. Member of **The World Archaeological Congress**.
4. Member of **Al-Buwayda Charitable Society**, Al-Ramtha, Jordan.

5. Research Interests

My research interests include in the following topics:

1. Studying visible and invisible organic residues of archaeological materials preserved in sites, particularly in pottery artifacts, including vessels and figurines, and in soil. The purpose of the study is to determine the nature and origins of organic remains that cannot be characterized using traditional techniques of archaeological investigation because they are either amorphous or invisible. Although they are usually present as complex mixture of organic molecules and can be preserved for long period of time inside pottery pores under favorable conditions, organic residues are extracted using organic solvents and then separated, characterized and identified using the common analytical organic chemical technique of gas chromatography-mass spectrometry (GC-MS).

Analytical approaches and challenges: The nature and origin of organic residue are determined based on the detection of biomarkers in these residues that could have resulted from the common use of pottery for specific or different purposes in antiquity. Identification of biomarkers however is based on the available database, periodical literature reviews and our chemistry and biochemistry backgrounds. Matching biomarkers present in archaeological residues to those present in modern plants and animals likely to have been exploited in antiquity provide evidence on the nature and origin of analysed archaeological materials. Though, careful application is required because of the small sample size of the residue (usually micrograms), possible contamination, complex mixtures, degradation and the reliability of the biomarker approach. Therefore, compound specific carbon isotope analysis (^{13}C analysis) provides the robust answer key in many cases. This type of analysis is not available in Jordan and it requires collaboration to be executed abroad. Therefore, we greatly welcome who can collaborate with us in this topic of archaeological investigation. A related area

of interest is supporting the database of archaeological biomarkers and their sources via the identification of the chemical composition of modern natural materials from plants and animals using the GC-MS and study their degradation and preservation.

2. Studying archaeological pottery artifacts (vessels and figurines) fabric and mortars using inductively coupled plasma-mass spectrometry (ICP-MS) and laser ablation (LA)-ICP-MS, x-ray fluorescence (XRF), x-ray diffraction (XRD) and petrographic microscopes. These analyses are conducted to provide data on the mineral and elemental composition of the pottery and mortars for technological and provenance purposes. They are very useful methods to explore the possible mixing of raw materials and trade of goods especially when they linked with conventional archaeological evidences.

Analytical approaches and challenges: Major, minor and trace elements and minerals are analysed. Clay samples from geological sources expected to be exploited in the past are carefully selected in order to be studied alongside the archaeological samples for provenance purpose. Careful application is also required because of the instrumental reliability, the ability of an element to leach or exchange during burial, the fractionation of elements by thermal heating, contamination and spectroscopic interferences of isotopic elements.

3. Our research interests extend to probe the physical states and conditions and damages of the monuments and objects. Digital survey using 3D laser scanning is conducted in order to study the architectural features and construction materials of the monuments and objects and to document the previous conservation, preservation, and restoration interventions and the deterioration elements that taken place in the parts of monuments and objects, therefore, assessing the physical conditions of these remains and conduct a propitiate study to repair the damages and preserve the monuments and their contents in a suitable way.
4. Theoretical studies of ancient materials: archaeologically, in order to interpret the results obtained from the analysis of archaeological materials including monuments we need to understand their archaeological contexts and modern environmental conditions. Therefore, previous studies and reviews for these materials and constructions and their provenance, functions and uses in the past are being conducted before they are being subjected to any type of chemical analysis.
5. Studying ancient DNA. Ancient nucleic acids, particularly DNA studies, are providing clues for solving quite a wide range of anthropological and archaeological issues important for understanding the evolution of modern humans. The relationships or lack thereof between ancient human populations for example has been elucidated through the study of the DNA extracted from ancient bone.

Research keywords

- Archaeometry
- Archaeology
- Analytical chemistry
- Archaeological chemistry
- Archaeological sciences
- Biogeochemistry
- Biomarkers

- Gas chromatography-mass spectrometry (GC-MS)
- Inductively coupled plasma-mass spectrometry (ICP-MS)
- Laser ablation (LA)-ICP-MS
- 3D laser scanning
- X-ray fluorescence (XRF)
- X-ray diffraction (XRD)
- Fourier Transform Infrared (FT-IR) Spectrometry
- Ultraviolet-Visible (UV-Visible) Spectroscopy
- Thin section petrography (TSP)
- Microscopy
- Artifacts, pottery and figurines

6. Grants / Awards (Funded Researches)

Funded Researches:

1. **2020 – Now in Jordan:**
Air Pollution Impact on Cultural Heritage Sites in Jordan. *Funded by the Deanship of Scientific Research and Graduate Studies at the Hashemite University, Jordan. (13050 JD).*
2. **2012 – 2015 in Jordan:**
Analysis of Organic Residues Preserved in Archaeological Ceramics from Bronze Age and Iron Age Sites in Jordan. *Funded by the Scientific Research Support Fund (SRSF), Ministry of Higher Education and Scientific Research, Jordan. (59194 JD).*
3. **2012 – 2014 in Jordan:**
Scientific Investigations of Bronze Age and Iron Age Ceramics from the Site of Sahab, Jordan. *Funded by The World Academy of Sciences (TWAS), Italy. (7000 USD).*
4. **2011 – 2014 in Jordan:**
Archaeometric Study of Archaeological Ceramics from the Site of Tell Abu al-Kharaz. *Funded by the Deanship of Scientific Research and Graduate Studies at the Hashemite University, Jordan. (9850 JD).*
5. **1st June – 31st August 2011 in Germany:**
Wine Biomarkers in Ancient Ceramic Vessels from Jordan. *Funded by the Deutsche Forschungsgemeinschaft, a German Research Funding Organization, Germany.*
6. **2008 – 2010 in Jordan:**
Organic Residues Preserved in Ceramics from the Site of Khirbet Al-Batrawy, an Early Bronze Age (3rd Millennium B.C.) Fortified City in North-Central Jordan. *Funded by the Deanship of Scientific Research and Graduate Studies at the Hashemite University, Jordan. (2974 JD).*

7. Publications

Copy any of the following two links and past it in the address bar/URL bar in order to open the web page of my publications:

[http://staff.hu.edu.jo/Published_Researchs.aspx?id=5g/6ZIwgPMw=]

[https://hu.edu.jo/research/FAC_DEP_E.aspx]

Published

1. Jaradat, M. H., Douglas, K. A., Al-Dairy, M. A. and **Mayyas, A. S.** (2020). Early Bronze Age Tabular Scrapers from Northern Jordan: Khirbet Ez-Zeraqoun Case Study. *Journal of Critical Reviews*, Vol. 7 (No 19), pp 4068-4079. (English Language).
DOI: 10.31838/jcr.07.19.475
[<http://www.jcreview.com/index.php?fulltxt=127120&fulltxtj=197&fulltxtp=197-1597922708.pdf>]
2. **Mayyas, A. S.** (2018). Organic Residues Preserved in Ancient Pottery from Sites in Jordan. *Mediterranean Archaeology and Archaeometry*, Vol. 18 (No. 1), pp 61–75. (English Language).
[[http://maajournal.com/Issues/2018/Vol18-1/6_Mayyas%2018\(1\).pdf](http://maajournal.com/Issues/2018/Vol18-1/6_Mayyas%2018(1).pdf)]
3. **Mayyas, A.** and Douglas, K. (2015). Organic residues in Iron Age II pottery vessels from Jneneh, Jordan. *Mediterranean Archaeology and Archaeometry*, Vol. 15 (No. 3), pp 31–44. (English Language).
[<https://eis.hu.edu.jo/deanshipfiles/pub106794706.pdf>] [<http://www.maajournal.com/Issues2015c.php>]
4. **Mayyas, A.**, Douglas, K., Hoffmann, T., Thorenz, U., Bany Yaseen, I. and El-Khalili, M. (2013). Organic residues preserved in archaeological ceramics from the Early Bronze Age site of Khirbet Al-batrawy in north-central Jordan. *Mediterranean Archaeology and Archaeometry*, Vol. 13 (No. 2), pp 189–206. (English Language).
[<https://eis.hu.edu.jo/deanshipfiles/pub106794971.pdf>]
[<http://www.maajournal.com/Issues2013b.php>]
5. Bany Yaseen, I. A., Al-Amoush, H., Al-Farajat, M. and **Mayyas, A.** (2013). Petrography and mineralogy of Roman mortars from buildings of the ancient city of Jerash, Jordan. *Construction and Building Materials*, Vol. 38, pp 465–471. (English Language).
[<https://eis.hu.edu.jo/deanshipfiles/pub106793886.pdf>]
[<http://www.sciencedirect.com/science/article/pii/S0950061812006058>]
6. Mohammad El-Khalili, Nizar Al Adarbeh, Yahya Al Shawabkeh, and **Abdulraouf Mayyas.** (2013). Il Ninfeo romano di Amman. Documentazione e indagine architettonica (Roman Nymphaeum in Amman. Documentation and Architectural Study). *Disegnare Idee Immagini (Drawing Ideas Images)*, Vol. 47 (No. 2), pp 36–45. (English Language).
[<https://eis.hu.edu.jo/deanshipfiles/pub106796388.pdf>]
[http://www.dsdra.it/drupaluni/dipartimento_/pubblicazioni/disegnare-idee-immagini]
7. **Mayyas, A. S.**, Al-Qudah, M. A., Douglas, K. A. and Al-Ajlouny, F. K. (2012). Beeswax Preserved in Archaeological Ceramics: Function and Use. *Ain Shams University. Faculty of Arts. Annals*, Vol. 40 (No. 2), pp 343-371. (English Language).
[<https://eis.hu.edu.jo/deanshipfiles/pub106796389.pdf>]
[<http://arts.asu.edu.eg/article.php?action=show&id=104545#.WSv8zTexUdU>]

8. **Mayyas, A. S.**, Stern, B., Coningham, R., Fazeli, H. and Gillmore, G. (2012). Beeswax preserved in a Late Chalcolithic bevelled rim bowl from the Tehran Plain, Iran. *The journal of the British Institute of Persian Studies*, Vol. 50, pp 13–25. (English Language).
[<https://eis.hu.edu.jo/deanshipfiles/pub106794747.pdf>] [<http://www.bips.ac.uk/publications/iran-journal/volumes/>]
9. Al-Ajlouny, F., Douglas, K., Khrisat, B. and **Mayyas, A.** (2012). Laden Animal and Riding Figurines from *Hirbet ez-Zeraqōn* and their Implications of Trade in the Early Bronze Age. *Zeitschrift des Deutschen Palästina-Vereins (ZDPV)*, Vol. 128 (No. 2), pp 99–121. (English Language).
[<http://www.eis.hu.edu.jo/deanshipfiles/pub102422385.pdf>]
[http://www.palaestina-verein.de/wp/wordpress/?page_id=1982&lang=en]
10. Al-Qudah, M. A., Al-Jaber, H. I., **Mayyas, A. S.**, Abu-Orabi, S. T. and Abu Zarga, M. H. (2010). Chemical Compositions of the Essential Oil from the Jordanian Medicinal Plant *Dittrichia Viscosa*. *Jordan Journal of Chemistry*, Vol. 5 (No. 4), pp 343–348. (English Language).
[<http://jjc.yu.edu.jo/Issues/Vol5No4PDF/4.pdf>] [<http://jjc.yu.edu.jo/Issues/Vol5No4Contents.html>]

Partly Published

1. **Mayyas, A.** (2007). Provenance and product: Lipid residue and trace element analysis of prehistoric ceramics from the Tehran plain, Iran. GC-MS and (LA) ICP-MS analysis of sherds from five sites of Late Neolithic to Late Chalcolithic periods (c. 6200 - 3000 B.C.) from the Tehran Plain, Iran. PhD Dissertation, 436 pages, University of Bradford, Bradford, UK. (English Language).

2. Conferences , Symposiums, and Workshops

Copy any of the following two links and past it in the address bar/URL bar in order to open the web page:

<http://staff.hu.edu.jo/Conference.aspx?id=5g/6ZIwgPMw=>

https://hu.edu.jo/research/FAC_DEP_E.aspx

1. **Mayyas, A.** (2021). The University’s Role in the Scientific Publishing that Serves the Local Community: Contribution to the Developing and Increasing Awareness. *The Sixth Religious Concordance/Harmony Conference in Al-Zarqa*, 7th January 2021, organised by the Hashemite University in cooperation with the Christian Youth Club in AL-Zarqa, at the Christian Youth Club headquarters, Al-Zarqa, Jordan.
[] [No URL]
2. **Clarivate Analytics Workshop: Ten Rules for using Publication and Citation Analysis.** 11th June 2018. Organised by the Deanship of Scientific Research, American Corner Hall at the Library, Hashemite University, Al-Zarqa, Jordan.
[] [No URL]
3. **Mayyas, A.**, Khrisat, B., Douglas, K. (2016). Identification of Organic Residues Preserved in Ancient Pottery from Sites in Jordan. *The First International Conference Titled in Tourism Management & Heritage Conservation*, 15th – 18th April 2016. Hashemite University, Al-Zarqa, Jordan.
[<https://eis.hu.edu.jo/deanshipfiles/conf106792492.pdf>] [No URL]

4. **Mayyas, A.,** Douglas, K. (2015). Analysis of Organic Residues Preserved in Archaeological Pottery and Soil from Jordan. *Third International Conference of the College of Arts and Social Sciences. Interdisciplinarity between Social and Other Sciences: Experiences and Aspirations.* 15th – 19th December 2015. *Sultan Qaboos University, Muscat, Oman Sultanate.*
[<https://eis.hu.edu.jo/deanshipfiles/conf106792491.pdf>] [No URL]
5. **Mayyas, A.,** Hoffmann, T., Khrisat, B., El khalili, M. (2015). Fuel for Lamps: Organic Residues Preserved in Iron Age Lamps Excavated at the Site of Sahab in Jordan. *International Conference on Advanced Materials (ICAM 2015),* 27th – 29th April 2015. Jordan University of Science and Technology, Irbid, Jordan.
[<https://eis.hu.edu.jo/deanshipfiles/conf106792493.pdf>] [No URL]
6. **Mayyas, A. S.** (2014). Analysis of Organic Residues Preserved in Archaeological Ceramics Using GC-MS Technique. *Conservation, Documentation and Management of Archaeological Sites: Challenges and New Approaches.* NARNIA – A New Archaeological Research Network for Integrating Approach to Ancient Material Studies Project Training Course, 6th – 10th April 2014, Hashemite University, Al-Zarqa, Jordan.
[[https://eis.hu.edu.jo/deanshipfiles/conf106792494.pdf](#)] [No URL]
7. **Mayyas, A. S.,** Alshawabkeh, Y. S., Ibrahim, M. (2013). Analysis of Organic Residues Preserved in Archaeological Ceramics From Jordan. *Session 2.1A.: The Management of Wild Resources and the Origin and Spread of Domesticated Plants and Animals. The Seventh World Archaeological Congress (WAC),* 14th - 18th January, 2013, Dead Sea, Jordan.
[<https://eis.hu.edu.jo/deanshipfiles/conf106791602.pdf>] [No URL]
8. **Mayyas, A.** (2010). Organic Residues Preserved in Archaeological Ceramic Vessels: A Case Study of Ceramics from the Early Bronze Age Site of Khirbet Al-Batrawy, Al-Zarqa Province, Jordan. *Tourism and Applied Sciences in Archaeology. Scientific Day at the Institute of Archaeology,* 22 April 2010, University of Jordan, Amman, Jordan.
[<https://eis.hu.edu.jo/deanshipfiles/conf106792466.pdf>] [No URL]
9. **Mayyas, A.** (2010). Analysis of Organic Residues Preserved in Archaeological Ceramics. *Priorities of the Archaeological Research in Jordan.* 7th – 8th July 2010, Department of Archaeology at Yarmouk University, Irbid, Jordan.
[<https://eis.hu.edu.jo/deanshipfiles/conf106792465.pdf>] [No URL]
10. **Mayyas, A.** (2010). Analysis of Organic Residues Preserved in Archaeological Ceramic Vessels and their Importance in Revealing Cultural Aspects of Ancient People. *Archaeological and Cultural Resources, in the Arid and Semiarid Regions and their Adaptation for Investment and Development, the Third Scientific Conference,* for the "Jordan Society for Expanding and Developing the Natural Resources" and with collaboration with the Hashemite University / Faculty of Natural Resources and Environment, 13th - 15th July 2010, Hashemite University, Al-Zarqa, Jordan.
[<https://eis.hu.edu.jo/deanshipfiles/conf106791605.pdf>] [No URL]
11. **Mayyas, A. S.,** Coningham, R., Stern, B. and Fazeli, H. (2005). Combined Organic Residue and Trace Element Analysis of Late Neolithic and Chalcolithic Ceramic Vessels Excavated From the Tehran Plain, Iran. *The Life Cycle of the Artefact, in the UK Archaeological Science 2005 Conference,* 13th - 16th April 2005, University of Bradford, Bradford, UK.
[<https://eis.hu.edu.jo/deanshipfiles/conf106791606.pdf>] [No URL]

3. Scholarships and Fellowships
<p>Scholarships</p> <p>PhD scholarship (2003 – 2006) by Queen Rania Faculty of Tourism and Heritage / Hashemite University.</p> <p>Research Fellowship</p> <p>Analysis of Organic Residues Preserved in Archaeological Ceramic Vessels from Jordan: Wine Biomarkers in Ancient Ceramic Vessels. Johannes Gutenberg-Universität Mainz, Institut für Anorganische und Analytische Chemie. Funded from June to September 2011 by the <i>Deutsche Forschungsgemeinschaft</i> (DFG: www.dfg.de/en), a German Research Funding Organization (Foundation) in Germany.</p>
4. Supervision
<p>Supervisor of the following MA dissertations:</p> <ol style="list-style-type: none"> 1. Heba Sawalmeh. (2015). Organic and Functional Analysis of Early Bronze and Iron Age Pottery from North and Central Jordan. MA dissertation. Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University. 2. Hassan Alyaseen. (2016). Characterization of Lichens Growing on the Dolmens in Wadi Az-Zarqa, Jordan. MA dissertation. Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University.
5. Reviewing and Refereeing
<p>Three papers were reviewed</p>
6. Taught Courses

* Department of Chemistry at the Faculty of Science at the Hashemite University (**HU**) in 2000.

	Module	Module No
1.	General Chemistry (1) / Lab	103103

** Department of Medicinal Chemistry and Pharmacognosy at the Faculty of Pharmacy at Jordan University of Science and Technology (**JUST**) during the time period 2000 – 2003.

	Module	Module No
1.	Pharmaceutical Analytical Chemistry	302251 (Code: PHAR 225)
2.	Pharmaceutical Analytical Chemistry Lab	302271 (Code: PHAR 227)
3.	Instrumental Analysis and Quality Control Lab (Pharmaceutical Instrumental Analysis Lab)	303270 (Code: PHAR 327)

*** Department of Medicinal Chemistry and Pharmacognosy at the Faculty of Pharmacy at Jordan University of Science and Technology (**JUST**) for three semesters during the academic year 2018/2019 (sabbatical leave).

	Module	Module No
1.	Pharmaceutical Analytical Chemistry	302251 (Code: PHAR 225)
2.	Pharmaceutical Instrumental Analysis Lab	303270 (Code: PHAR 327)
3.	Pharmaceutical Analytical Chemistry & Instrumental Analysis Lab	303290 (Code: PHAR 329)

The following practical applications were taught and applied in the of the Faculty of Pharmacy labs at **JUST**:

I. Pharmaceutical Analytical Chemistry lab & Pharmaceutical Analytical Chemistry & Instrumental Analysis Lab:

1. **Qualitative Analysis** (analysis of cations and anions)
2. **Quantitative Analysis** (acid – base titration reactions, oxidation – reduction titration reactions, complex formation titration reactions, and precipitation titration reactions).

II. Instrumental Analysis and Quality Control Lab (Pharmaceutical Instrumental Analysis Lab) & Pharmaceutical Analytical Chemistry & Instrumental Analysis Lab:

We had been interested in the following practical applications according to different international pharmacopoeias, such as the British and US Pharmacopoeias:

- **Potentiometric titration using pH-meters.**
- **Ultraviolet-Visible absorption spectroscopy.**
- **IR-absorption spectroscopy.**
- **¹H-NMR spectroscopy.**
- **Chromatographic methods and techniques including PC, TLC, GC and HPLC.**

**** Department of Pharmaceutical Chemistry at the Faculty of Pharmaceutical Sciences at the Hashemite University (HU) beginning from the 1st semester of the academic year 2019/2020.

	Module	Module No
1.	Pharmaceutical Analytical Chemistry	131703315

***** Queen Rania Faculty of Tourism and Heritage (QRFTH) at the Hashemite University (HU) since 2007 until now.

	Module	Module No
1.	Archaeometry	110903332
2.	Conservation of Archaeological Organic Materials	110903314
3.	Conservation of Archaeological In-Organic Materials	110903313
4.	Properties of Archaeological materials	110903211
5.	Conservation and Restoration of Heritage materials	110903316
6.	Principals of Conservation Science	110903111
7.	Conservation Science (1)	110903111
8.	Restoration of Archaeological Materials	903421
9.	Restoration of Heritage Materials	110903312
10.	Introduction to Archaeology	110901121
11.	Geoarchaeology	110903301
12.	Interpretation of Archaeological Sites	902412
13.	Informatics and Archaeology	110903351
14.	Cultural Resource Management(1)	2902211
15.	Cultural Resource Management(2)	2902212
16.	Ancient Architecture(1)	110903161
17.	Ancient Architecture(2)	110903261
18.	History and Archaeology of Jordan(1)	110901111
19.	History of Ancient Art(1)	110901231
20.	History of Ancient Civilisation(2)	901311
21.	Archaeology and Tourism	111404116
22.	Non-Archaeological Tourism	2901201
23.	Stability Evaluation of Structures	110903432
24.	Cultural Heritage of Jordan	110901202
25.	Interpretation of Heritage Sites	110902315
26.	General Chemistry for Archaeology	140903222
27.	Palaeoenvironment and of Arch Sites Formation	110903411
28.	Introduction to Ancient Techniques	110903371
29.	Tourism Services Management	160901102
30.	Documentation of Archaeological Materials	110903442
31.	Archaeological Dating and Survey Techniques	110903222
32.	Special Topics	110903491
33.	Fieldwork Training (Chemical Analysis, Conservation and Restoration)	110903492 140903492

7. More Information

MSc Research (1996-1998):

Title of the MSc dissertation

Spectroscopic and kinetic studies on the decolorization phenomenon of Benzothiazole Merocyanine Dye and related compounds.

The M.Sc. research included the following activities

- Preparation of Benzothiazole Merocyanine Dye it's related compounds and confirming their chemical structures by ¹H-NMR spectrometer
- Kinetic studies of the decolorization phenomenon of these dyes in basic media at different temperatures by UV-Visible absorption spectrophotometer.
- Solvent effects on the electronic absorption and fluorescence spectra of these dyes
- Fluorescence properties of other related benzothiazole compounds in various cyclodextrins aqueous solutions

PhD Research (2003-2007):

Title of the PhD thesis

Provenance and product: Lipid residue and trace element analysis of prehistoric ceramics from the Tehran plain, Iran.

Subtitle of the PhD thesis

GC-MS and (LA) ICP-MS analysis of sherds from five sites of Late Neolithic to Late Chalcolithic periods (c. 6200 - 3000 B.C.) from the Tehran Plain, Iran.

The PhD research included the following activities

- Extraction and analysis of organic residues preserved in prehistoric (6200 – 3000 B.C.) ceramic sherds and soil samples excavated from the Tehran Plain, Iran.
- Analysis of the elemental composition of ceramic sherds for provenance purposes.

8. Other Activities Inside and Outside the University

Participating the discussions of the conferences, workshops, sessions and lectures:

- The First International Conference on Environmental Management and Technologies (ICEMT), 1-3 November 2010, Amman, Jordan.
- A two-day workshop: Museums and Public Education: Rethinking Local Practice. Jordan Museum in collaboration with the Department of Antiquities, Queen Rania Institute for Tourism and Heritage at the Hashemite University, Yarmouk University and the University of Jordan, 7-8 April 2010, Jordan Museum Lecture Hall/Ras El-Ain.
- The second International Conference on Conservation of Architecture, Urban Areas, Nature and Landscape: Towards A Sustainable Survival of Cultural Landscape, and The second International

Conference on Digital Media and its Applications in Cultural Heritage. 13 – 15 March 2011, Holiday Inn, Amman, Jordan.

- The National Heritage Documentation and Management System: Middle Eastern Geodatabase for Antiquities, Jordan (MEGA–Jordan). Partnerships between the Getty Conservation Institute, the World Monuments Fund and the Department of Antiquities of Jordan. Organized by the Department of Antiquities of Jordan, Tuesday 12th April 2011, Jordan Museum, Amman, Jordan.
- Climate Changes and Their Impacts on Human and Environment. The sixth Scientific Day of the Faculty of Natural Resources and Environment, Hashemite University, 24 April 2012.
- The Third Conference (Daraat Urdoniah): Intangible Heritage in Jordan. Towards A National Strategy for the Intangible Heritage. Greater Amman Municipality, Hashemite University and Middle East University. Tuesday 26th – 27th April, 2011, Al-Hussein Cultural Centre, Ras El-Ain, Amman, Jordan.
- The 3rd International Conference on Energy, Water and Environment (ICEWE 2013) and the 10th Scientific Engineering Day. The Faculty of Engineering at the Hashemite University in collaboration with the International Association for Sharing Knowledge and Sustainability (IASKS) (Canada) and ACADIA University (Canada). Hashemite University, Faculty of Engineering, 21-23 April 2013, Zarqa, Jordan.
- The first Festival and Conference of Jordanian Mosaics: Mosaics is the National Memory. With the collaboration of the Institute of Mosaics Art and Restoration/Madaba. Middle East University on 3rd of March 2014.
- Building International Networks for Enhancement of Research in Jordan Humboldt Kolleg. Al Sadaqa Main Auditorium, Princess Sumaya University for Technology (PSUT) and German Jordanian University (GJU), April 3rd – 5th 2014, Amman, Jordan
- Architecture: A Compendium for Bridging and Connecting (Sixth Architecture Exhibition) and T-MEDIA Project: Architectural Programs, Learning Outcomes and Assessment (International workshop). Monday 18th May 2015, Faculty of Engineering, Hashemite University.
- The role of the official and non-official institutes to control the extreme thought. The Cultural Directorate of Al-Zarqa Municipality. Monday 11th May 2015 in the King Abdullah II Cultural Centre.
- Lectures on Archaeology and Heritage at the American Center of Oriental Research (ACOR), British Institute and the German Protestant Institute of Archaeology (GPIA), Amman, Jordan.

9. Training Courses

1. 2007 November (10th – 17th): Education Technology and University Assessment. The 12th Course. Hashemite University.
2. 2007 September (7th – 14th): Teaching Materials Management, Interactive Lecture Broadcasting System, Lecture Recording System, Materials Development System. Hashemite University.

10. Computer Skills

1. High practice in formatting and installing general and specialized Software.
2. High practice in using the Microsoft Office including: Word, Excels, and PowerPoint Presentation.
3. High practice in using GC-MS Workstations (Mass Spectroscopy)

11. References

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