

SCILIGHTS FALL 2022

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DEAN'S MESSAGE



Welcome to SciLights Fall 2022, the College of Science (COS) Newsletter!

This issue of SciLights highlights some of our collective achievements for Fall 2022. We made significant progress toward our strategic priorities. COS organized a retreat meeting on 29th of September 2022 at Al Ain Rotana Hotel to discuss and develop its Strategic Plan 2021-2023.

Perhaps the most remarkable achievement of the College of Science is its scientific research outcomes, where the college has topped all other colleges in terms of research productivity, namely, its faculty and students were able to publish in 2022 a total of 534 publications in Scopus journals, with an increase of more than 9% from 2021. Some papers were published in prestigious journals, such as Nature and Cell: 14 papers in the top 1%, 165 papers in the top 10%, and 354 papers in top 25%. Two significant workshops were held by the Department of Mathematical Sciences, and a number of keynote speakers from renowned universities participated and presented their papers.

Additionally, the college was able to enhance its working relationship with the European Center for Nuclear Research (CERN). To strengthen our current scientific collaboration and broaden it to newer horizons, a UAEU delegation visited CERN on 21-23 Sept. 2022. On another note and with the support of the Ministry of Education, one undergraduate student enrolled in a student exchange program at the University of Wisconsin-Madison in the fall of 2022.

The College of Science worked hard to attract and retain both undergraduate and graduate students, who currently total to 1841 undergraduate and 230 graduate students. The college also graduated this semester 118 undergraduate and 14 graduate students.

I have always been proud of our students, faculty, and staff for their distinguished achievements; let us all keep working hard, enthusiastically and harmoniously to achieve our ambitious goals.

Prof. Maamar Benkraouda
Dean, College of Science

COS Advisory Board

The College Advisory Board, composed of eminent individuals with governmental and non-governmental backgrounds, guides the College in attaining its mission and assists the College with its role in serving the nation. The Advisory Board meets at least once a semester and reviews College plans and achievements.

The members of the Advisory Board are:

Mr. Sultan Al Hajji (Chair)

(Vice President for Public Affairs and Alumni Relations, Mohamed bin Zayed University of Artificial Intelligence; Chairman, Advisory Board of COS)

Eng. Suhail Thani Al Muhairi (Member)

(Infrastructure & Services Coordination Division Manager, Al Ain Municipality)

Dr. Mohamed Murad Abdulla (Member)

(Director, Decision Support Center, Dubai Police)

Mr. Saeed Mohammed Al Muhairi (Member)

(Executive Director, Emirates Metrology Institute, Abu Dhabi Quality Conformity Council)

Ms. Sheikha Al Maskari (Member)

(Communications Advisor, Chief Innovation Officer & Founding member, UAE Space Agency)

Mr. Salem Rashed Almatrooshi (Member)

(Retired from ADNOC)

Ms. Aayda Al Shehhi (Member)

(Director, Radiation Safety, Federal Authority for Nuclear Regulation)

Dr. Abdulla Ahmed Al Mandous (Member)

(Executive Director, National Center of Meteorology)

Editors

Dr. Asma Al-Menhali (Vice Dean, COS)
Dr. Aaron Henderson (Biology)
Dr. Soleiman Hisaindee (Chemistry)
Prof. Abdulrahman Fowler (Geosciences)
Dr. Humberto Rafeiro (Mathematical Sciences)
Prof. Mofreh Ramadan Zaghoul (Physics)
Mr. Mohamed Shahid (Dean's Office)

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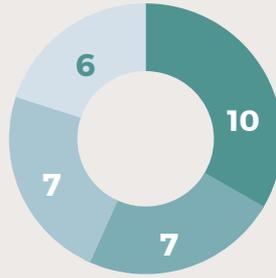
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Biology



BSc (Biology)

- Cellular & Molecular Biology Track
- Ecology & Organismal Biology Track
- MSc (Environmental Sciences & Sustainability)
- MSc (Molecular Biology & Biotechnology)
- Ph.D. (Ecology & Environmental Sciences)
- Ph.D. (Cellular & Molecular Biology)



Chemistry

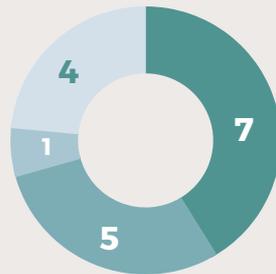


BSc (Chemistry)

- BSc (Biochemistry)
- MSc (Chemistry)
- PhD (Chemistry)



Geosciences

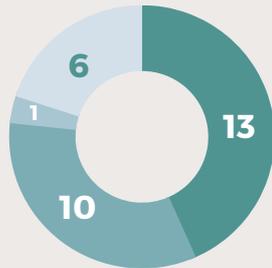


BSc (Geosciences)

- MSc (Geosciences)
- PhD (Geosciences)

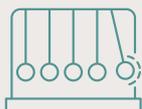


Mathematical Sciences

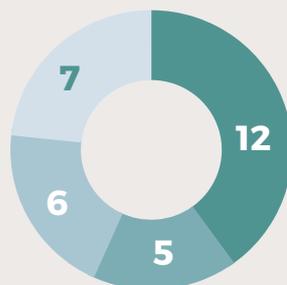


BSc (Mathematics)

- BS-MS (Mathematics)
- MSc (Mathematics)
- PhD (Mathematics)



Physics



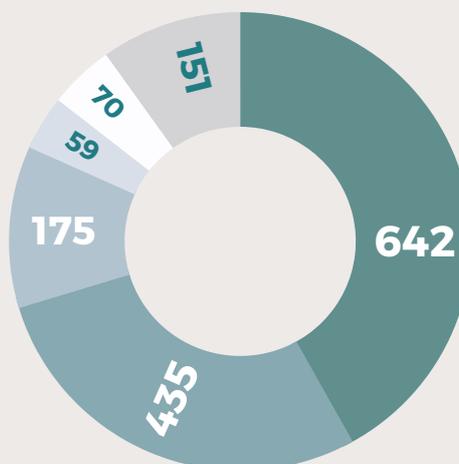
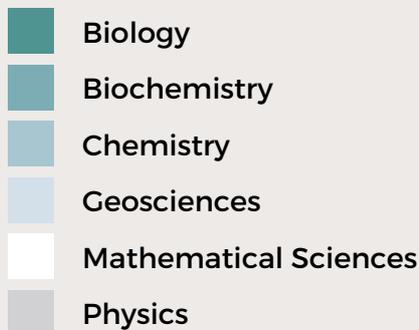
BSc (Physics)

- BS-MS (Physics)
- MSc (Physics)
- MSc (Space Science)
- PhD (Physics)



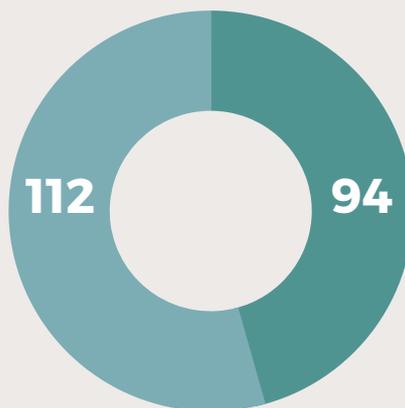
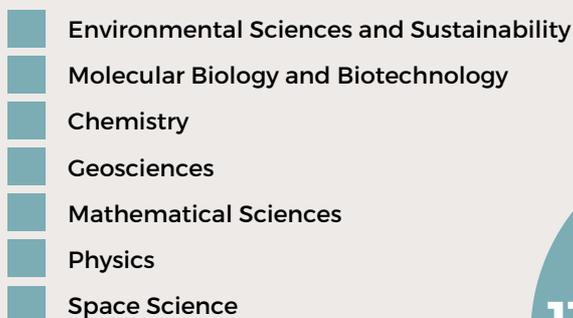
Student Enrollment

Undergraduate Programs



Graduate Programs

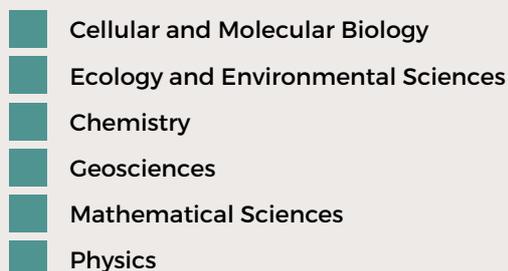
Master of Science



Programs in Progress

- BSc in Data Science
- MSc Track in Quantum Computing
- MSc in Forensic Science
- Minor in Materials Science

Doctor of Philosophy



Events & Activities

COS Retreat

29 September 2022

College of Science organized a retreat meeting on 29th of September 2022 at Al Ain Rotana Hotel to discuss and develop its Strategic Plan 2021-2023.



CERN Visit

21-23 September 2022

The purpose of the visit of the UAEU delegation that included the Associate Provost, Prof. Ahmed Murad, the Dean of the College of Science, Prof. Maamar Benkraouda, the Dean of the College of IT, Prof. Taieb Znati, and Prof. Salah Nasri from the Department of Physics to the European organization for nuclear research (CERN) was to strengthen our already-existing scientific collaboration and extend it to newer horizons. In particular, the delegation explored the possibility of building a Tier-2 computing center at the College of IT in UAEU that will be connected to the ATLAS/CERN computing grid and the international community of scientists. The aim is to provide adequate computing power for simulation and analysis tasks needed for the UAEU-ATLAS research group, as well as scientists from other departments, to use it as a computation platform. This will be the first Tier-2 center in the region. Furthermore, the delegation discussed the possibility of organizing scientific activities, such as boot camps for undergraduate and high school students, as well as UAEU-CERN workshops and Master-Classes given by CERN renowned affiliated scientists to the UAE student community.



Najah Dubai 2022

23-25 October 2022

The College of Science, represented by Dr. Abdelouahid Samadi and Dr. Mahmoud Mostafa Khalil Atia, took part in the International Exhibition 'Najah Dubai' 2022, held at the Dubai World Trade Center over three days on October 23-25, 2022.



Workshop on Recent Advances in Analysis and Applications

19-20 October 2022

The Department of Mathematical Sciences at UAEU organized a workshop on Recent Advances in Analysis and Applications, which took place on October 19-20, 2022. The workshop focused on significant recent developments in real analysis, including fractional calculus, as well as concurrent progress in their application to PDEs and numerical analysis. The goal of the workshop was to bring together researchers who work in both theoretical and applied mathematical analysis-related fields. The workshop will foster interactions, open up new avenues for future research, and promote new collaborations. Seven keynote speakers from well-known universities attended and presented their papers.



Events & Activities

Solar Eclipse

25 October 2022

On October 25, 2022, a partial solar eclipse was seen in the UAE. Dr. Naslim Neelamkodan, Dr. Sreejith Karthikeyan, and Ms. Batool Ilyasi, from the Department of Physics, coordinated a solar eclipse viewing event for students at UAE University. Depending on the position of the moon in relation to the sun and earth, one can observe this rare astrophysical phenomenon at various phases, including its beginning, peak, and termination. 37% of the eclipsed sun was observed in Al Ain, United Arab Emirates, between 2:44 PM and 4:56 PM. A few of the images of the many phases and timelapse movies that Dr. Sreejith Karthikeyan took were presented. Students also engaged in safe eclipse viewing techniques using tools including Sun Spotters, Eclipse Glasses, Solar Filters, and Pin Hole Cameras.



College Advisory Board Meeting

21 November 2022

The College of Science Advisory Board held its first meeting of the 2022-2023 academic year on November 21, 2022. The Advisory Board meets twice a year, once in each semester, to review College plans and accomplishments.



Greenhouse Opening

21 November 2022

The Greenhouse at the Department of Biology began operations on November 21, 2022, in its current location, near the shared labs. Dr. Abdulla Ahmed Al Mandous, Executive Director of the National Center of Meteorology which funded the project, as well as the Vice Chancellor of UAEU, the Dean and Vice Dean of the College of Science, the Head of the Biology Department, and the Chair and the members of the College Advisory Board are attended the inauguration ceremony.



International Internship Program

13-22 November 2022

The Geosciences Department at COS hosted seven Japanese undergraduate students from Akita University (Japan) from 13-22 November 2022, as part of the MOU with Akita University, Japan. This scientific visit is a part of their program for international internships. The visiting students were hosted by Prof. Hakim Saibi and they took courses related to electromagnetic geophysical techniques and also attended geosciences department lectures. Akita University has sent three distinct groups of students to UAEU since 2018.



Events & Activities

AUA-UAEU Workshop on Graph Theory, Combinatorics and Applications (GTCA 2022) in collaboration with University of Indonesia

13-15 November, 2022

The UAEU Department of Mathematical Sciences in collaboration with the University of Indonesia, (Jakarta, Indonesia) and supported by the Asian Universities Alliance (AUA) organized a three-day workshop on Graph Theory, Combinatorics and Applications (GTCA 2022) from 13-15 November 2022. This was the second workshop of the series. The 1st Workshop (GTCA 2019) was held on October 9-10, 2019, and hosted by UAEU. GTCA 2022 was a F2F event that attracted 50 researchers from 25 countries including leading Universities from Europe, the USA, Canada, and Asia. 47 talks were delivered during the workshop in three parallel sessions. The workshop aims to create a platform for exchanging the latest research results and ideas and sharing advances and the latest trends in research methods. It also promotes collaborations. Eight keynote speakers presented their work.



Social Gathering

24 November 2022

The departments of Geosciences and Mathematical Sciences of the College of Science celebrated their program accreditation by ABET (Accreditation Board for Engineering and Technology). A dinner summit was held at Mercure Hotel in Jabal Hafit, in the presence of the Dean of the COS, on November 24, 2022. The Heads of the Geosciences and Mathematical Sciences departments praised the work of all the teams for their tremendous efforts to make ABET accreditation successful.

Visit of Prof. Cherifa Abdelbaki from Tlemcen University, Algeria.

Prof. Cherifa Abdelbaki from Tlemcen University in Algeria paid a visit to the Department of Geosciences on December 7, 2022. Her visit was intended to recognize and discuss future water resources collaboration with the Department of Geosciences, with a particular emphasis on the environmental effects, mitigation, and protection strategies from flash floods. She went on a tour of the campus and the Department of Geosciences labs accompanied by Prof. Hasan Arman and Dr. Saber Hussein.



Visit of Prof. Shinya Kanemura from Osaka University, Japan.

Professor Shinya Kanemura from Osaka University in Japan, one of the world's leading theoretical particle physicists, visited the Department of Physics at UAEU where he gave a seminar on "Higgs Boson as a Probe of New Physics" on September 15, 2022. He is a collaborator of Prof. Salah Nasri from the Department of Physics. This visit was also an opportunity to initiate new research projects between the UAEU High Energy group and the Osaka University Particle Physics group led by Prof. Kanemura.

Faculty Achievements

Dr. Mohammad Tauqeer Alam

Dr. Mohammad Tauqeer Alam's lab at the UAE University (Al Ain), together with Charité - Universitätsmedizin Berlin (Germany) have published a research article in the CELL journal (Cell. 2023, 5;186(1):63-79.e21). The study reports that when cells exchange more metabolites with each other, particularly methionine amino acid, they live longer. Specifically, methionine amino acid was shown to be secreted by younger yeast cells which were then consumed by older cells.

In return, the methionine consumer cells released glycerol metabolite, which is needed for building cell membranes that play a part in protecting cells. Glycerol availability affected methionine-producing cells, causing them to live longer.



ICCESEN, Antalya, Turkey

A team from the Department of Geosciences presented four geological studies at the 9th International Conference on Science and Engineering, which will be held in Antalya, Turkey, from October 28 to October 31, 2022. Dr. Osman Abdelghany and Dr. Mahmoud Abu Saima presented two papers on stratigraphic sequences from the Paleocene and Lower Eocene geological periods (about 65-55 million years ago) of the Muthaymimah and Rus formations. Dr. Bahaa Eldin Amin also presented his research on geochemical

studies of economic mineralization in Wadi Ham, Fujairah Emirate. Prof. Abdel Rahman Fowler presented the lithofacies and provenance evolution of a late Neoproterozoic stream-dominated alluvial fan sequence: the Kareim Basin of central Egypt.



Dr. Ruwaya Alkendi

(Assistant Dean for Research & Graduate Studies)

Dr. Ruwaya Alkendi shared some possible solutions to combat climate change, including education and awareness. She also stressed the importance of early intervention for better outcomes. Dr. Ruwaya also proposed to take advantage of the registered patents in this field to find partial or radical solutions to the climate change challenges.



Dr. Abdessamad Tridane



Dr. Abdessamad Tridane of the Mathematical Science Department was recognized by the Abu Dhabi Department of Health on October 31, 2022 for his efforts to assist the Department of Health during the COVID-19 pandemic and commitment as a member of the epidemiological committee.

Prof. Synan AbuQamar



Prof. Synan was conferred Second Place in the category of Environmental Sciences for the Rashid Bin Humaid Cultural & Sciences Award (2022). The title of the winning project is 'Improving the efficiency of phytoremediation of soil contamination with toxic metals using beneficial bacteria in the United Arab Emirates: An environmental study'.

Dr. Naslim Neelamkodan

Dr. Naslim Neelamkodan from the Department of Physics is part of the international collaboration project for the first image released with James Webb Space Telescope on the inner regions of the Orion nebula.



Dr. Dalal Matar AlShamsi

Newly appointed as the director of the National Water and Energy Centre for the academic year 2022-2023, wishing her all the best.



Prof. Sabir Bin Muzaffar

Prof. Sabir Bin Muzaffar, Ecologist at the Department of Biology, was recently elected a Fellow of the Royal Society of Biology (UK).



Dr. Muhammad Abdullatif

Dr. Muhammad Abdullatif from the Department of Physics published a paper in nature contributing to the understanding of "how the first supermassive black holes were formed in universe".



Student Achievements

Maryam Poolad

Maryam Poolad from the Chemistry Department won first place in the Essay Writing Competition organized by Student Success Unit (UAEU). Student Academic Honors & Awards Ceremony (Dean's List Students - Spring 2022) Honors & Awards Ceremony (Dean's List Students - Spring 2022) The COS in collaboration with the Honor Student Committee organized a ceremony to discuss the importance of the honor program and to award outstanding honor students.



Student Activities

18 October 2022

Student Academic Honors & Awards Ceremony (Dean's List Students - Spring 2022)

The College of Science in collaboration with the Honor Student Committee organized Honors Ceremony, discussing the importance of honor program and awarding the outstanding honor students.



11 November 2022

Career Development Day

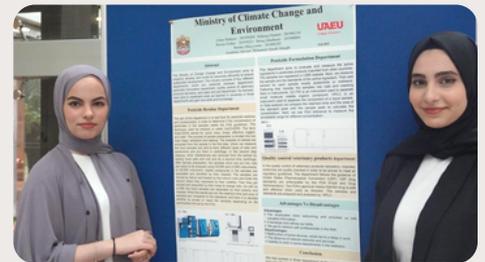
The Department of Physics and JAHEZ Program organized a Career Development Day under the theme "Know What the Job Market Needs from Physics Graduates".



11 November 2022

Poster Exhibition Day

Students from all departments showcased their experiences in the internship training program at various institutions during the Fall 2022 semester.



29 November 2022

UAE National Day Celebrations

On the occasion of UAE National Day, the COS Honor Students Committee organized round-table talks featuring the following speakers:

- **Oxford University Summer Internship** (Dr. Iltaf Shah, Department of Chemistry)
- **Intern Training Opportunity** (Dr. Badria Almurshidi, Department of Biology)
- **SEG student chapter at UAEU** (Prof. Hakim Saibi, Department of Geosciences)
- **ACS-UAEU Chapter** (Prof. Na'il Saleh, Department of Chemistry)
- **Choices that will Change your Life** (Ms. Wadha Al Falasi, PhD Student)

Moderator: Dr. Abdelouahid Samadi, Department of Chemistry



Awarded Research Grants 2021-2022

COS Faculty members were awarded several internal grants including 10 UPAR, 10 Start-ups, 7 Strategic Programs, and 1 AUA. Two externally funded Sandooq Al Watan grants and one patent were also secured by COS faculty members.

International Research Collaborations

COS is actively pursuing several international research collaborations and allied activities with the following institutions:

- UAEU-UC Berkeley
- UAEU-Chinese Academy of Science Collaborative Research Project
- UAEU-CERN
- UAEU-University of Belgrade

Awards for publications in top journals

COS ranked first among UAEU colleges for the number of papers published in top journals in 2021: 1% (5 papers), 5% (10 papers), 10% (52 papers), and 25% (117 papers).

Publication Outcome

COS leads other UAEU colleges in terms of the total number of publications in Scopus-indexed journals for two consecutive years: 491 publications (2021) and 534 publications (2022). The Dean of COS commends the hard work and dedication of its researchers for this achievement.

Departmental Seminars (Fall 2022)

The various COS departments organized several scientific seminars featuring both internal and external speakers from international institutions. The number of seminars organized are as follows: Department of Biology (4) seminars, the Department of Chemistry (3), the Department of Geosciences(4), the Department of Mathematical Sciences (5), and the Department of Physics (5).

Accreditation

B.Sc. programs in Geosciences and Mathematics were accredited in 2022 by ABET-ANSAC



Applied and
Natural Science
Accreditation
Commission