**QU-Summer Internship -2021 courses details of all the 10 centers**

**(1) Name of the Center: مركز ابن خلدون للعلوم الإنسانية والاجتماعية**

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| **Course Name** | **Research Topics** | **Name of Main moderator** | **Assistants Moderator (if any)** | **Program duration and suggested dates** | **(Pre-Requisite (If any~~)~~** | **Maximum****Number of students allowed**  |
| مقدمات في الأدب والنقد(الأسبوع الأول) | مفاهيم عامة في الأدب | أ.نورة الهاجري مساعد باحث |  | 6–10 June 2021 | لا يوجد  | 10 |
| مفاهيم عامة في النقد |
| مناهج النقد السياقية (نظرات عامة) (1-2) |
| مناهج النقد السياقية (نظرات عامة)(2-2) |
| مناهج النقد النسقية (نظرات عامة)(1-2) |
| مقدمات في الأدب والنقد(الأسبوع الثاني ) | مناهج النقد النسقية (نظرات عامة)(2-2) | أ.نورة الهاجريمساعد باحث |  | 13-17 June 2021 | لا يوجد  | 10 |
| من قضايا الشعر الحديث |
| مفاهيم روائية |
| أدب ما بعد الاستعمار |
| النقد الثقافي  |

**(2) Name of the Center: Center for Advanced Materials (CAM)**

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| **#** | **Course Name** | **Research Topics** | **Name of Main moderator** | **Assistants Moderator (if any)** | **Program duration & suggested dates** | **(Pre-Requisite (If any~~)~~** | **Maximum allowed**  |
| 1 | Advanced Materials for DifferentApplications | Understanding the behavior of cathode in Li-Ion Batteries at high temperature (Qatari Environment). | Dr. Abdul Shakoor  | Hanan Abdul Tariq | 1 month6 June -1st July | Undergraduate/graduate students | 10 |
| Electrochemical behavior of Polyolefin based smart coatings for corrosion protection of steel in Oil and Gas industry.  | Dr. Abdul Shakoor | Mudassir Nawaz | 1 month6 June -1 July | 10 |
| Development of high-performance aluminum composites using microwave sintering techniques | Dr. Abdul Shakoor | Adnan Khan | 1 month6 June -1 July | 10 |
| 2 | Materials, synthesis and characterization | Nano fiber membranes for water treatment | Prof. Syed Zaidi | Haleema Saleem | 4 weeks6 June -1 July |  | 4-6 |
| 3 | Advanced Materials and applications | wastewater treatment and reuse in the GCC | Prof. Syed Zaidi | Haleema Saleem | 4 weeks6 June-1 July |  | 4-6 |
| 4 | Smart Materials for seawater mining from seawater reverse osmosis (SWRO) desalination plant | SWRO desalination (Day-1)SWRO brine management (Day-2)Resource recovery technology (Day-3)Introduction to smart adsorbent materials (Day-4)Preparation and characterization of smart materials for SWRO resource recovery (D-5) | Dong Suk Han | Reem Azam | 26/May ~ 28/July | Students who took “Desalination” course are encouraged | 6 |
| 5 | Nanomaterials for osmotically engineered desalination system  | General membrane fabrication (Day-1)Forward osmosis (FO) system (Day-2)FO application (Day-3)Pressure retarded osmosis (PRO) system (Day-4)PRO application (Day-5) | Dong Suk Han | Tasneem ElMakki | 26/May ~ 28/July | Students who took “Desalination” course are encouraged | 6 |
| 6 | Novel zwitterionic antibiofouling soft material based on trimethylamine-N-oxide | Introduction Prevention of biofoulingpolyzwitterionsSwitchability of zwitterionsSoft material form zwitterions (D-5) | Peter Kasak |  | 20/May 20/June | Chemistry or biology  | 6 |
| 7 | Non-destructive Testing (NDT) of metals  | Basic Principles NDTPrinciples Liquid Penetrant TestingPrinciples Magnetic Particle TestingPrinciples Ultrasonic TestingPrinciples Radiographic TestingPrinciples Radiographic film interpretationPrinciples Visual Inspection  | Dr. Mohammed Maqbool | Mr. Abdul Jaleel  |  10 days (May 06 – June 17)  |  | 10  |
| 8 | Nano-based silicone rubber composites | Development of nano-based silicone rubber composites for high voltage insulation in Qatar environment | Mohammad K. Hassan | Fadi KamandBilal Salah | June 2, 9, 16, 23 | None | N/A |

**(3) Name of the Center: Qatar University Young Scientist Center**

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| **Course Name** | **Research Topics** | **Name of Main moderator** | **Assistants Moderator (if any)** | **Program duration and suggested dates** | **(Pre-Requisite (If any~~)~~** | **Maximum****Number of students allowed**  |
| Summer internship course | Synthesis Strategies for  | Jolly Bhadra | N/A | 3 weeksJune 6, To June 24,  | N/A | 10 |
| 2D nanomaterials |
| Summer internship course | Development of high-  | Zubair Ahmed | Ehsan Raza & Sumayya Rahim | 3 weeksJune 6,To June 24 | N/A | 10 |
| efficiency perovskite/c- |
| silicon tandem solar |
| cells |

**(4) Name of the center: Biomedical Research Center (BRC)**

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| **Course** | **Topics** | **Sub-Topics** |
| **Summer research training at the Biomedical Research Center”** | **Introduction to Biomedical Research, Lab Safety and Ethics in animal experiments** | Introduction to Biomedical Research. |
| In vitro - In vivo experimentation. |
| Ethical Issues in Biomedical Research. |
| Lab Safety Measures, Types of PPE, Sample handling. |
| Waste Management, Fire and safety, Daily cleaning maintenance. |
| **Genomics** | Sampling. |
| Extraction. |
| PCR and RT-PCR. |
| Analysis. |
| Reporting. |
| **Microbiology** | Preparation of bacterial growth media. |
| Sampling and streaking of bacteria from clinical source and surrounding environment. |
| Culturing bacteria into an agar plates. |
| Identification of bacteria: Gram staining, biochemical, molecular and automated. |
| Antibiotic sensitivity testing. |
| **Cell Culture** | Apply basic aseptic techniques for cell culture. |
| Counting and seeding. |
| Passaging. |
| Evaluate the viability of the cultured cells. |
| Use brightfield and fluorescent microscope. |
| **Chick Embryo** | Understand the importance of chick embryo as a model in studying metabolic disorders such as heart disease and diabetes. |
| Recognize the major developmental steps in chick embryo focusing on cardiovascular system, and resemblances to human. |
| Doppler echocardiography technique to evaluate cardiac physiology. |
| Perform chick embryo heart isolating techniques. |
| Histology and RT-PCR with chick embryo hearts. |
| **Zebrafish embryo** | Understand the importance of zebrafish model for toxicology research and for studying human genetics syndromes. |
| Learn basic steps of breeding adult fish to generate embryos for experimentation. Learn the details of maintaining a zebrafish facility. |
| Recognize the major developmental steps in zebrafish embryo focusing on cardiovascular system. |
| Designing and injecting morpholino to manipulate gene function in zebrafish |
| Toxicology and motility assays for zebrafish using microscopy. RT-PCR with zebrafish. |

**(5) Name of the Center: National Center for Educational Development**

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| **Course Name** | **Research Topics** | **Name of Main moderator** | **Assistants Moderator (if any)** | **Program duration and suggested dates** | **(Pre-Requisite (If any~~)~~** | **Maximum****Number of students allowed**  |
| Educational Research Methodology | أنواع ومناهج البحث العلمي | Hanan Farraj | Khaled Mikdad | 4 Hours8th June2021 |  | 10 |
| مهارة إعداد خطة البحث العلمي | Fatima Saeed Al-hassan | N.A | 4Hours9th June2021 |  | 10 |
| كتابة الدراسات السابقة(Writing Literature Review) | Anbarah Al Abdullah | Dr. AbdulssalamQaroush/ University of Jordan  | 4 Hours10th June 2021 |  | 10 |
| Qualitative Research and its Innovative methods | Zainab Attar | N.A | 4 Hours15th June 2021 |  | 10 |
| مقدمة في الحث التربوي وأخلاقيات البحث | Shada Farajallah | N.A | 4 Hours16th June 2021 |  | 10 |

**(6) Name of the Center: The Central Laboratories Unit (CLU)**

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| **Course Name** | **Research Topics** | **Name of Main Moderator** | **Assistants Moderator**  | **Program duration and suggested dates** | **Max.****No. of students allowed** |
| **Chromatographic Techniques: Fundamentals, Instrumentation and Application** | Basic Principles of Laboratories Safety | **Mr. Ahmad Ahmadi** | **Mr. Mohammed Akkbik** **Dr. Mohammad Ibrahim** |  **5 days** **(May 30 – June 3)**  | **15** |
| General Introduction to Chromatographic Techniques: Chromatography Theories, Instrumentation and Applications. |
| Ion Chromatography (IC): General Principals, Instrumentation and Applications. |
| Liquid Chromatography (LC): General Principals, Instrumentation and Applications. |
| Gas Chromatography (GC): Basic Principals, Instrumentation and Applications. |
| Mass Spectrometry and Mass-Selective Detection in Chromatography and Troubleshooting of Chromatographic Equipment. |
| Simple Quiz for Participants |
| **Nuclear Magnetic Resonance (NMR): Basic Theory, Spectral Analysis, and Industrial Applications** | Basic Principles of Laboratories Safety | **Dr. Haw-Lih Su** | **Ms. Sherin Abdelfatah****Dr. Mohammad Ibrahim** |  **5 days**  **(June 6 – June 10)** | **15** |
| Introduction to Nuclear Magnetic Resonance (NMR) Spectroscopy. |
| 1D NMR Spectra and the Information Involved. |
| Structure Determinations with NMR Spectroscopy. |
| 2D NMR Spectra and their Applications. |
| Advanced Nuclear Magnetic Resonance (NMR) Applications. |
| Simple Quiz for Participants |
| **Atomic and Molecular Spectroscopy: Fundamentals, Instrumentations and Techniques** | Basic Principles of Laboratories Safety | **Dr. Mohammad Ibrahim** | **Mr. Mohammad Suliman****Ms. Muneera Al Qahtani****Ms. Sherin Abdelfatah** |  **5 days**  **(June 13 – June 17)** | **15** |
| Introduction to Atomic and Molecular Spectroscopy: Fundamentals, Instrumentation and Applications |
| Introduction to Sample Preparation and Sample Digestion for Trace Metals Analysis. |
| ICPMS & ICPOES, Sample Analysis and Data Interpretation.  |
| FTIR and UV/VIS: General Principals, Instrumentation and Applications. |
| Raman Spectroscopy: General Principals, Instrumentation and Applications. |
| Simple Quiz for Participants |
| **Electron Microscope (SEM&TEM): Basics, Sample Preparation and Applications** | Basic Principles of Laboratories Safety | **Mr. Nandagopal Sivadas** | **Mr. Essam Attia****Dr. Mohammad Ibrahim** | **5 days**  **(June 20 – June 24)** | **15** |
| Introduction to Electron Microscopy Techniques “SEM and TEM” |
| Explanation of Instrumentation Scanning Electron Microscope  |
| Sample Selection and Preparation for Scanning Electron Microscope (SEM) |
| Hands – on Usage of Scanning Electron Microscope (SEM) |
| Demonstration of Energy Dispersive X-Ray (EDS) Analysis |
| Hands – on Usage of Energy Dispersive X-Ray (EDS) by Participants. |
| Introduction to Transmission Electron Microscopy (TEM). |
| Demonstration of Transmission Electron Microscopy (TEM) Functions and Usages. |
| Sample Selection for TEM Processing and TEM Sample Preparation. |
| Screening of Samples on Transmission Electron Microscopy. |
| Simple Quiz for Participants |

**(7) Name of the Center: Laboratory Animal Research Centre (LARC)**

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| **Course Name** | **Research Topics** | **Name of Main moderator** | **Assistants Moderator (if any)** | **Program duration and suggested dates** | **(Pre- Requisite (If any~~)~~** | **Maximum****Number of students allowed**  |
| **Lab Animal Ethics and Animal models in preclinical Research** | Lab Safety, Good Lab Practice & Emergency Response | Dr.Vijay | Dr.Murali | 3 weeks (6th June 2021 to 24th June 2021 |  | 5 |
| Introduction to Animal ethics |
| Animal model in research |
|  Animal Welfare |
| Occupational health and safety policies and procedure.  |
| **Microbiological Techniques in Rodent Health Surveillance** | Lab Safety, Good Lab Practice & Emergency Response | Mr.Imran | Dr.Murali | 3 weeks (6th June 2021 to 24th June 2021 |  | 5 |
| Basic Sterilization techniques and its principles - Microbial culturing Methods  |
| Methods of microbiological monitoring  |
| Health monitoring techniques  |
| Occupational health and safety policies and procedure |
| **Molecular and Cell culture Techniques in rodent research** | Lab Safety, Good Lab Practice & Emergency Response | Dr.Kavitha | Dr.Murali | 3 weeks (6th June 2021 to 24th June 2021 |  | 5 |
| Sample collection, Processing and nucleic acid extraction |
| Molecular techniques and its applications |
| Cell culture basics and techniques |
| Occupational health and safety policies and procedure. Risk & waste management |

**(8) Name of the Center: Environmental Science Center (ESC)**

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| **#** | **Course Name** | **Research Topics** | **Name of Main moderator** | **Assistants Moderator (if any)** | **Program duration and suggested dates** | **(Pre-Requisite (If any~~)~~** | **Maximum****Number of students allowed**  |
| 1 | Research Analytical Methodologies at Esc | Environmental monitoring an introduction.Core Research Area at the ESCGeneral safety during research Sampling Analytical methodologiesParameter AnalysisInstrumental Analysis (ESC Instruments)Quality Assurance and Control Microbiology /Biology Technical Report: Analysis Data Interpretation: | Dr Hassan Mustafa Hassan | Dr.Talal | 23 days6 June- 6 July | -- | 20-30 |

**(9) Social & Economic Survey Research Institute (SESRI)**

**Online Internship - Summer 2021**

Start Date: 06 June 2021

End Date: 17 June 2021

**For QU students, we require the following:**

* 1. Updated CV
	2. Transcript (Print screen showing student information and overall GPA).
	3. Request email from the student’s College/ Dept. addressed to SESRI Director and indicates :
* Student’s Name and QU ID
* Student’s Program – Major
* Intended Department to join at SESRI (Research Dept. or Policy Dept.)
* An email from Student’s advisor including above student information should be sent to sesri@qu.edu.qa
	1. Fill the registration form on the Research and Graduate studies website and attach above requirements (1 and 2).
* Deadline: **May 23rd, 2021**
* The Course attendance  certificate will be issued by the Office of VP for Research and Graduate Studies
* Outstanding Students in each batch will be rewarded

**Topics covered:**

Research Department:

* Questionnaire design and development
* Sample design and selection
* Data entry setup
* Analysis plans
* Data analysis using the statistical software SPSS or STATA
* Presentation of results

Policy Department:

* Designing policy studies
* Carry out fieldwork
* Data analysis
* Writing policy reports

**(10) Name of the Center: Gas Processing Center (GPC)**

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| **Course Name** | **Research Topics** | **Name of Main moderator** | **Assistants Moderator (if any)** | **Program duration and suggested dates** | **(Pre-Requisite (If any~~)~~** | **Maximum****Number of students allowed**  |
| **An introduction to Industrial Clustering training** |  | Dr. Sabla Yahya Ali Alnory | --- | 4 weeks |  2nd -3rd years Engineering and Science students  | 6 |
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| **Basics of water and air quality characterization**  |  | Mr. Dan Jerry Densing Cortes  | Riham Mohamed Sorkatti Abubakr | 4 weeks | 2nd -3rd years Engineering and Science students | 6 |
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| **Solid surface characterizations methods**  |  | Mr. Ahmed Mohamed Shehata Soliman | Dr. Ali Sardar  | 4 weeks |  2nd -3rd years Engineering and Science students  | 6 |
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| **Solid waste Management**  |  | Dr. Muneer Mohammed Awadh Baabbad | Dr. Ali Sardar  | 4 weeks |  2nd -3rd years Engineering and Science students  | 6 |
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