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|  | **On-line Course on Laboratory Quality Systems**  **(September 2 – November 8, 2024)** |  |

Texas A & M Agrilife Research and COMESA invites applications for participation in an online course entitled ‘*Laboratory* *Quality Systems*’, offered by Texas A&M University (TAMU).

**Deadline for submission of the application**August 26, 2024

**Minimum education requirement**Bachelors (BSc) in Animal Science/Biochemistry/Chemistry/Food Science or related field.

**Other essential requirements**Candidate must be employed and responsible for the laboratory operation and analyses.

**Technology requirements**

* A computer that is less than 4 years old;
* Reliable high-speed Internet connection (cable/DSL or better) with an updated browser;
* Software such as Microsoft Word, PowerPoint & Excel 2003-2013 or equivalent;
* Common plug-ins (e.g., Adobe Reader, virus protection, etc.); and
* Microphone and speakers.

**Costs**Under a recent MOU between COMESA and Texas A&M AgriLife Research, no participation fee will be charged for candidates or the organization from COMESA countries.

**Application submission procedure**

Submit application by email to Mukayi Musarurwa (Dr.) ([MMusarurwa@comesa.int](mailto:MMusarurwa@comesa.int)) with the following:

1. A-page motivation letter explaining why you wish to take this course and how you will apply the knowledge you will gain. Your letter should include:

* First name
* Last name
* Phone number
* Email address

1. A letter of time and resource commitment from your Director/Head of your organization with his/her signature indicating access to work internet and time to view materials and complete assignments.

**Applicant notification**

Successful candidates will be informed of their selection on or before August 30, 2024. Selection will be based on the requirements listed above, the motivation letter from the candidate, and the letter from the Director/Head of the institution in which the candidate is employed. Spaces in the course are limited. **You will not be admitted if you do not submit both the documents described above.**

**COURSE DESCRIPTION**

**Overview**

The course will be in **English**. The course will address, among others, the following main topics:

* Ensuring Validity and Reliability
* Laboratory Procedures
* Quality Assurance: Procedures, Tools & Methods
* Laboratory Management

The course will also cover quality systems and method development, ISO 17025:2017 standard and accreditation, ensuring the integrity of procedures used in laboratory processes, chain of custody, information management, international laboratory standards, regulatory requirements for laboratory operation and bio-security precautions

**Time Commitment**About8 – 10 hours per week for 10 weeks (See Schedule Below)

**Course Tools**

All course materials and activities will be presented via a course website. Details will be provided to participants before the start of the course.

**Course Content**

Weekly materials are presented using a variety of formats, including online narrated power point slide presentations and videos. Weekly course assignments, conducted as a discussion or homework assignment, will assist in the participant’s understanding of concepts. These include, but are not limited to, statistical process controls, developing standard operating procedures (SOPs), corrective/preventive actions, and methods of validation.

**Class Readings**

Most readings will be available in the learning management system in .pdf format. Other readings will be available online, with a hyperlink provided in the learning management system.

**Grading**

Grades will be determined as follows:

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| Discussions (6) | 30 pts |
| Homework (6) | 70 pts |

Due to the participatory nature of this web‐based class. Completion of the course assignments and a score >70% is required to receive a certificate. Participants will receive a certificate upon successful completion of the course

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| **Instructor information**  Dr. Tim Herrman  Professor, State Chemist and Director  Texas A&M University, USA  [tjh@otsc.tamu.edu](mailto:tjh@otsc.tamu.edu) | **Course Coordinator**  Prabha Vasudevan  Education/Outreach Coordinator  Office of the Texas State Chemist, USA  [prabha@otsc.tamu.edu](mailto:prabha@otsc.tamu.edu) |

**Course Schedule**

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| ***Week (Dates)*** | ***Topics*** | ***Assignments/Due Dates*** |
| ***Unit I – Laboratory Quality System Structure*** | | |
| ***1*** *September 2 - 8 , 2024* | *Laboratory Quality Systems-Overview; Laboratory Standards* | *Self-Introduction – Due September 6, 2024 Discussion #1 – Due September 9, 2024* |
| ***2*** *September 9 - 15 , 2024* | *ISO 17025 Requirements; Laboratory Accreditation* | *Homework #1 – Due September 16, 2024* |
| ***Unit II – Laboratory Quality Control Techniques*** | | |
| ***3*** *September 16-22, 2024* | *Quality Control Techniques  The Big Three*   * *Traceability* * *Proficiency Testing* * *Uncertainty* | *Discussion # 2 – Due September 23,2024*  *Homework #2 – Due September 23,2024* |
| ***4*** *September 23 -29, 2024* | *Quality Control Procedures*   * *Chain of Custody* * *Control of Non-conforming work*   *Recording and Reporting for Quality Assurance* | *Homework #3 – Due September 30,2024* |
| ***5*** *September 30 – October 6, 2024* | *Statistical Process Control* | *Homework #4 – Due October 7, 2024 Discussion # 3 – Due October 7, 2024* |
| ***Unit III – Method Validation*** | | |
| ***6*** *October 7 - 13, 2024* | *Validation of Analytical Procedures* | *Discussion #4 – Due October 14, 2024* |
| ***7*** *October 14 – 20, 2024* | *Validation of Microbiological Procedures & Chemical Procedures, Spectroscopic Procedures and Rapid Methods* | *Homework #5 –Due October 21, 2024* |
| ***8*** *October 21 – 27, 2024* | *Validation of Spectroscopic Procedures and Rapid Methods* | *Discussion #5 – Due October 28, 2024* |
| ***Unit IV – Laboratory Quality Management*** | | |
| ***9*** *October 28 – November 3, 2024* | *Concept of Quality Management; Technology Strategy; Budgeting; Benchmarking* | *Homework #6 – Due November 4, 2024* |
| ***10*** *November 4 - 8, 2024* | *Laboratory Networks ; Laboratory Safety; Risk Assessment* | *Discussion #6 – Due November 11, 2024* |