



### JRC Mission

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European Commission  
Joint Research Centre (JRC)

Tel.: +32 (0)14 571 721  
Fax: +32 (0)14 571 548  
E-mail: [jrc-gee-rm-course@ec.europa.eu](mailto:jrc-gee-rm-course@ec.europa.eu)



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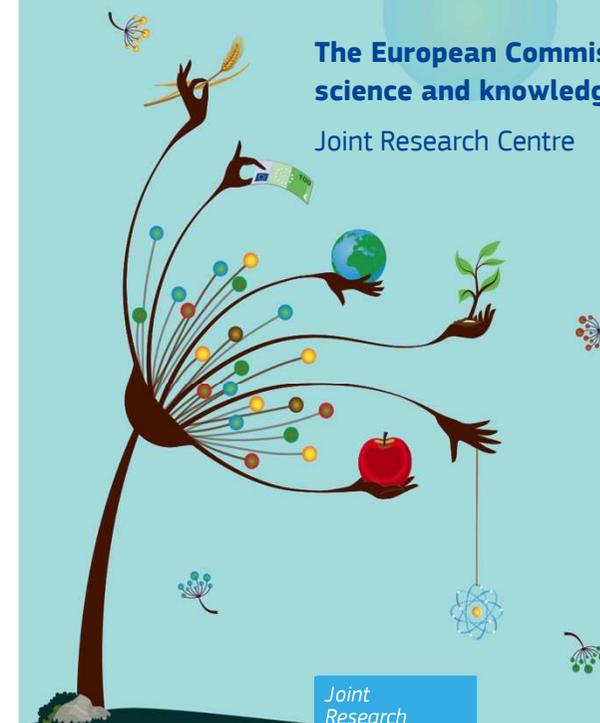
## Use of reference materials and the estimation of measurement uncertainty

Training course - Announcement

09-10 October 2019

The European Commission's  
science and knowledge service

Joint Research Centre



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## Aim

- This course provides participants with the theoretical basis for the estimation of measurement uncertainty and establishment of traceability. Measurement uncertainty and traceability are essential for the evaluation of measurement results.
- Reference materials are key tools for achieving traceability of measurements, proving the accuracy of methods and demonstrating the proficiency of laboratories. This knowledge is applied to the proper selection and use of reference materials.

## Who should attend?

- Laboratory managers and practitioners in analytical laboratories who use reference materials for statistical quality control, method validation and calibration and need to assess measurement uncertainties on customer's demand or as a requirement of ISO 17025.
- ISO 17025 auditors who need to assess the estimation of measurement uncertainties and the correct application of certified reference materials.

## Prerequisites

- A postgraduate level in chemistry and knowledge of concepts such as uncertainty, traceability, error propagation and general analytical measurements is needed.
- Microsoft® Excel is used during the exercises. Familiarity with this programme as well as knowledge of basic statistical concepts (e.g. mean and standard deviation) are required to make full use of the exercises.
- Ability to discuss and interact in English.

## Contact

European Commission  
Joint Research Centre  
Directorate F - Health, Consumers and Reference Materials  
Retieseweg 111  
B-2440 Geel – Belgium  
Tel.: +32 (0)14 571 721  
Fax: +32 (0)14 571 548  
E-mail: [jrc-gee-rm-course@ec.europa.eu](mailto:jrc-gee-rm-course@ec.europa.eu)

## Topics tackled

### Uncertainty estimation

- What are the basic principles?
- How to estimate uncertainty from validation data?
- How can I use reference materials to estimate my measurement uncertainty?

### Establishing traceability

- What do I have to do to make my results traceable?
- How can I establish traceability with reference materials?

### Reference material selection

- Where can I find reference materials?
- Which material is the right one for me?

### Reference material handling

- How much of each material must I use?
- How should I store my materials?
- How do I correct for moisture?

### Reference materials use

- How can I demonstrate trueness?
- How can I demonstrate my method proficiency?

### Making full use of available information

- What do the terms on a certificate mean?
- What can I do with a certification report?

### Intensive practice in small groups

This course strongly emphasises practical application of theoretical concepts. To this end, each lecture is accompanied by exercises in small groups (5-6 people) during which the concepts are put into practice including calculations of the full uncertainty budget. Each group is supported by a trainer who helps in asking the right questions and guides the group to a successful conclusion. About half of the time of the course is devoted to these exercises.

Participants will have the opportunity to visit JRC's facilities for reference material processing and storage on 10 October 2019 after the course.

## Practical Information

### Timing

The course will start on 09 October 2019 at 9:00 and it will end on 10 October 2019 at 15:30 (or 16:30 for those visiting the processing and storage facilities).

### Accommodation

The JRC will make reservations in a close-by hotel.

### Transfers

Transfers will be organised:

- from the airport /train stations on arrival
- from the hotel to the JRC and back to the hotel
- from the JRC to the airport/train stations

### Location

European Commission  
Joint Research Centre  
Directorate F - Health, Consumers and Reference Materials  
Retieseweg 111, 2440 Geel, Belgium

### Registration

Please send an e-mail to: [jrc-gee-rm-course@ec.europa.eu](mailto:jrc-gee-rm-course@ec.europa.eu)  
The number of participants is restricted to approximately 30. Registrations will be handled on a "first-come, first served" basis.

**Deadline for registration: 30 June 2019**

### Registration fee

€ 350 – Fee includes lunches, social dinner on 09 October 2019 and transportation between the hotel and the JRC, as well as from the airport on arrival and from JRC to the airport on 10 October 2019.

Accommodation costs are not included in the registration fee and have to be paid directly at the hotel.