

## Advanced Mass Seminar Pre-work

Complete a laboratory internal audit) assessing your laboratory compliance to ISO/IEC 17025 (and NIST Handbook 143, Section 6.2, NISTIR 6969, NISTIR 5672) for each of the following topics, related to advanced mass and use of weighing designs, and provide tables/data as requested in this list:

1. Provide a high level overview of the Laboratory Goals upon completion of this course;
2. Staff Training (5.2): Describe the staff training, education/experience related to mass calibrations;
3. Facility, (5.3): Describe the environmental controls in the laboratory that will enable compliance to Echelon I limits as described in Handbook 143 or SOP 5/28; also describe the area where standards (internal and incoming) will be or are stored;
4. Procedures (5.4): Describe the mass procedures in current use in the laboratory;
5. Uncertainty (5.4.6): Provide a summary of mass calibration uncertainties for the laboratory that includes a description of each component that is currently incorporated and how each item is calculated (See SOP 29);
6. Equipment (5.5): Provide an inventory of the balances and environmental measuring instruments (see also Standards) that will be used to perform advanced weighing designs and include the current standard deviation of the measurement process that designate the procedures currently in use;
7. Standards and Traceability (5.6): Provide a current and proposed traceability hierarchy/inventory of standards and their calibration dates (masses, environmental instruments, SRMs), and describe if changes are in process (See GMP 11, 13);
8. Care and Handling of Standards and Items Submitted for Calibration (5.8): Describe the process by which standards are accepted for calibration as well as current practices for cleaning, stabilization, and equilibration of mass standards;
9. Measurement Assurance (5.9): Describe the current control charts and assessments that are in place in the laboratory for mass measurements (See SOP 9, 30); and
10. Calibration Certificates (5.10): If your laboratory has already been working at this level, assess the calibration certificates issued for calibrations done at this level against the criteria in section 5.10 of 17025 (or Handbook 143) (See SOP 1).

**Expectations:** It is expected that each item will be from a paragraph of a few sentences to a couple of pages of descriptions, with attached objective evidence as appropriate (See the attached optional template). The pre-work should be a narrative and not simply a collection of charts, tables, and graphs. Some of the tables and analysis may be combined in a spreadsheet, as long as suitable identification, document control, and references are made in the summary narrative.

**Assessment:** This pre-work will be reviewed by instructors prior to the seminar and used in various activities during the seminar to prepare a Laboratory Action Plan for implementing, improving, and/or gaining recognition/accreditation of mass dissemination techniques in normal laboratory operations. The Laboratory Action Plan will be worked on during the seminar and is considered one of the course deliverables that will be turned in on the last day as partial evidence for successful completion. Keep track of the amount of time spent on this pre-work to be submitted with your work.

**Submit the pre-work to:** Val Miller ([vmiller1@nist.gov](mailto:vmiller1@nist.gov)) **by:** May 15  
**(Failure to submit the pre-work by this date will result in removal from the seminar roster.)**

Provide a high level overview of the Laboratory Goals upon completion of this course. Attach objective evidence as appropriate. Reference included files as appropriate.

Staff Training (5.2): Describe the staff training, education/experience related to mass calibrations. Attach objective evidence as appropriate. Reference included files as appropriate.

Facility, (5.3): Describe the environmental controls in the laboratory that will enable compliance to Echelon I limits as described in Handbook 143 or SOP 5/28; also describe the area where standards (internal and incoming) will be or are stored. Attach objective evidence as appropriate. Reference included files as appropriate.

Procedures (5.4): Describe the mass procedures in current use in the laboratory. Attach objective evidence as appropriate. Reference included files as appropriate.

Uncertainty (5.4.6): Provide a summary of mass calibration uncertainties for the laboratory that includes a description of each component that is currently incorporated and how each item is calculated (See SOP 29). Attach objective evidence as appropriate. Reference included files as appropriate.

Equipment (5.5): Provide an inventory of the balances and environmental measuring instruments (see also Standards) that will be used to perform advanced weighing designs and include the current standard deviation of the measurement process that designate the procedures currently in use). Attach objective evidence as appropriate. Reference included files as appropriate.

Standards and Traceability (5.6): Provide a current and proposed traceability hierarchy/inventory of standards and their calibration dates (masses, environmental instruments, SRMs), and describe if changes are in process (See GMP 11, 13). Attach objective evidence as appropriate. Reference included files as appropriate.

Care and Handling of Standards and Items Submitted for Calibration (5.8): Describe the process by which standards are accepted for calibration as well as current practices for cleaning, stabilization, and equilibration of mass standards). Attach objective evidence as appropriate. Reference included files as appropriate.

Measurement Assurance (5.9): Describe the current control charts and assessments that are in place in the laboratory for mass measurements (See SOP 9, 30). Attach objective evidence as appropriate. Reference included files as appropriate.

Calibration Certificates (5.10): If your laboratory has already been working at this level, assess the calibration certificates issued for calibrations done at this level against the criteria in section 5.10 of 17025 (or Handbook 143) (See SOP 1). Attach objective evidence as appropriate. Reference included files as appropriate.