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**Office of Weights & Measures
Training Edition****Scheduled and Requested
Metrology Training and
Laboratory Auditing
Program Problems***Byline: Georgia Harris*

NIST Office of Weights and Measures Laboratory Metrology Program offers a systematic program of metrology training seminars important to your Metrology Laboratory operations. As laboratory manager or as a metrologist, you should be aware of the changes that have been made in the courses offered and the requirements that accompany the changes.

Did you know that there are no more Basic and Intermediate Metrology Seminars? That's right. These courses have not been taught since 2011 and 2012 respectively! So, if your performance plans and job announcements indicate that successful completion of these seminars is a requirement, they need to be updated.

Does this mean individuals that completed Basic and Intermediate Seminars (and the associated Laboratory Auditing Program [LAP] problems for states) need to attend refresher training and complete the new seminars? In general, the answer is no. However, if someone attended the older seminars and has not been working in the laboratory for the last three years, refresher training is essential for several reasons – least of which is the need for demonstrating hands-on proficiency. In addition, there have been many procedure changes and updates that have occurred in the past few years, and people that have not been a part of the laboratory program will need updated training on the new procedures to be successful. In fact, if an individual attended training but has not been working in the laboratory, and has not completed the appropriate LAP problems, refresher training is required. The NIST Handbook 143, Program Handbook Table 2 (as published in 2007) and the updated

In the Field

Is there a W&M topic that you would like to have appear in the Weights and Measures Connection?

How can we better serve our W&M community?

Do you have a safety tidbit to share?

Do you have a W&M event that you wish to post in the *Connection's* calendar?

Submissions can be sent to the Editor, Linda Crown at Linda.Crown@nist.gov

**OFFICE OF WEIGHTS AND
MEASURES**

General Inquiries: (301) 975-4004; e-mail: owm@nist.gov

Office Chief, Carol Hockert: e-mail: carol.hockert@nist.gov

Newsletter Editor: Linda Crown; (301) 975-3998; e-mail: linda.crown@nist.gov

version of Table 2 will be combined to reflect the acceptance of prior training and completion of LAP problems as well as the new series of courses (available on the OWM website: <http://www.nist.gov/pml/wmd/labmetrology/lab-resources.cfm>).

The core metrology seminars now include: Fundamentals of Metrology (1 week) with a pre-requisite that includes successfully passing a mathematics pre-test; Mass Metrology (2 weeks); and the Volume Metrology (1 week).

There are now only two sets of LAP problems – the Fundamentals of Metrology and the Advanced Mass. The new Fundamentals of Metrology LAP problems rely on students completing proficiency tests in both mass and volume, plus a series of technical audits that reinforce training, support internal technical audits, and provide additional support and evidence for measurement traceability. The LAP problems are required prior to metrologists being recognized as Approved Signatories at designated levels, which includes the authority and responsibility for approving the technical content of calibration certificates. OWM is adding a time limit requirement on the Fundamentals of Metrology LAP problems; the problems are required to be completed within one year of completion of the training. For those who have not yet completed the Basic and Intermediate LAP problems, they have until December 31, 2015, to turn them in, at which time they will no longer be accepted.

For those laboratories wishing to expand their Scope to include mass calibrations via dissemination techniques and Mass Echelon I Recognition (OIML Class E₁ and E₂ for example), the Advanced Mass Metrology Seminar (9 days) is required. The Advanced Mass Metrology seminar is the last of the core courses to undergo a complete redesign based on our OWM International Association for Continuing Education and Training (IACET) accredited processes and system. It now incorporates the Advanced Hands-on seminar, which has been eliminated. An updated description of the new course is available on our website and the first redesigned Advanced Mass Seminar is scheduled for June 1 to 11, 2015, and is already FULL. This course was first taught in 1993 and has only been offered in alternating years; however, it has not been offered since 2011 to allow for the redesign of the course. People who attended earlier versions of the Advanced Mass Metrology seminar and have not yet completed the Advanced LAP problems also have only until December 31, 2015, to submit problems. For those attending the new Advanced Mass Metrology Seminar, there will be a two-year time limit for completing the Advanced Mass LAP problems.

Seminars are scheduled several months or years in advance and posted on the OWM Training Calendar and the Laboratory Metrology Training Schedule. But, you don't have to wait for OWM to schedule a training event. In fact, by logging into the OWM Contacts System, anyone can request additional courses that are not currently scheduled. In this way, OWM staff will have a better idea of what the current metrology training needs are and can regularly add courses throughout the year.

Training and Events Calendar 2015

Registration for training in the NIST Office of Weights and Measures is handled by Yvonne Branden at yvonne.branden@nist.gov.

Course descriptions can be viewed on the Office of Weights and Measures website at <http://www.nist.gov/pml/wmd/calendar.cfm> and clicking on the name of the course.

February 5 (2 hr)
Webinar - State Lab Annual Submission - Assessments
2:00 p.m. - 4:00 p.m.
Class No. 5371

February 9 - 13 (5 days)
Fundamentals of Metrology
Class No. 5347
NIST/Gaithersburg, MD

February 12 (2 hr)
Webinar - Conducting an Effective Management Review
2:00 p.m. to 4:00 p.m.
Class No. 5295

February 18 - 19 (2 days)
Handbook 130, Price Verification
Class No. 5350
Salt Lake City, UT

February 24 - 26 (3 days)
Train the Trainer
Class No. 5352
NIST/Gaithersburg, MD

February 26
NTEP Belt-Conveyor Sector Meeting
St. Louis, MO
Contact: info@ncwm.net

February 26 (2 hr)
Webinar - Internal Auditing Best Practices
2:00 p.m. to 4:00 p.m.
Class No. 5296

March 2 - 6 (5 days)
Fundamentos de Metrología
Class No. 5348
NIST/Gaithersburg, MD

March 9 - 12 (4 days)
Handbook 133, "Checking the Net Contents of Packaged Goods," Basic
Class No. 5363
Southgate, CA

(continued on pg 3)

In addition to the core metrology seminars, OWM also has a number of webinars scheduled throughout the year with many additional webinars that can be scheduled based on need (see the accompanying list). The majority of the webinars are based on laboratory quality management systems and some are designated for "State Laboratories only."

The schedule and course lists have been sent to State Directors and laboratory staff along with their annual recognition feedback letters and certificates. But, you can still take a look at the list of courses and log-in to request your next seminar or webinar! If you think another course subject would be value-added, please send an e-mail in with your suggestions!

Georgia Harris, Laboratory Metrology Program: gharris@nist.gov

Link to OWM Contacts System: <https://tsapps.nist.gov/WMD/default.aspx>

Instructions on How to Request Training & Transcripts Using the Contacts System: <http://www.nist.gov/pml/wmd/upload/InstructionsHowToRequestTrainingTranscripts.pdf>

March 16 - 27 (2 weeks)
Mass Metrology Seminar
Class No. 5333
NIST/Gaithersburg, MD

March 17 - 19 (3 days)
New Administrator Workshop
Class No. 5368
NIST/Gaithersburg

March 19 (2 hr)
Webinar - Contract Review
2:00 p.m. - 4:00 p.m.
Class No. 5343

March 24 - 26 (3 days)
Livestock and Animal Scales
Class No. 5369
Nashville, TN

March 26 (2 hr)
Webinar - Document Control and Record Keeping
2:00 p.m. - 4:00 p.m.
Class No. 5344

April 1 (2 hr)
Webinar - NISTIR 6969, SOP 8, Part 1
(Continued on pg 5)

Available Courses

WEBINARS (COURSE NUMBERS)

- BASIC UNCERTAINTY CONCEPTS (1320)
- DOCUMENTING TRACEABILITY & CALIBRATION INTERVALS (1330)
- PT ANALYSIS USING NIST TOOLS (1245)
- SUPPLIER EVALUATION (1205)
- CALIBRATION CERTIFICATE EVALUATION (1201)
- CALIBRATION METHOD VALIDATION (1211)
- CONDUCTING AN EFFECTIVE MANAGEMENT REVIEW (1210)
- CONTRACT REVIEW (1206)
- DOCUMENT CONTROL & RECORD KEEPING (1204)
- INTERNAL AUDITING BEST PRACTICES (1220)
- MEASUREMENT ASSURANCE BASICS (1310)
- NISTIR 6969 SOP 8 PART 1 (30221)
- NISTIR 6969 SOP 8 PART 2 (30222)
- NISTIR 7383 SOP 19/18 PART 1 (30223)
- NISTIR 7383 SOP 19/18 PART 2 (30224)
- OWM & NVLAP APPLICATION (SUBMISSION) PROCESSES (30231)
- PROFICIENCY TESTING FOLLOW UP ACTIONS & ROOT CAUSE ANALYSIS (1240)
- SOFTWARE VERIFICATION & VALIDATION (1200)
- STATE LABORATORY ANNUAL SUBMISSION PROCESS (1230)
- UNCERTAINTY BUDGETS FOR SOP 14 (30230)
- UNCERTAINTY BUDGETS FOR SOP 19 (30229)

- UNCERTAINTY BUDGETS FOR SOP 4 (30227)
- UNCERTAINTY BUDGETS FOR SOP 5 (30228)

SEMINARS (COURSE NUMBERS)

CORE COURSES

- FUNDAMENTALS OF METROLOGY (211)
- MASS METROLOGY SEMINAR (212)
- VOLUME METROLOGY SEMINAR (213)
- LENGTH METROLOGY SEMINAR (214)

SPECIALTY AND ADVANCED SEMINARS

- LABORATORY ADMINISTRATION SEMINAR (37)
- ADVANCED MASS SEMINAR (205)
- BALANCE & SCALE CALIBRATION & UNCERTAINTIES (230)

2015 RMAPs (COURSE NUMBERS)

- CAMAP (226)
- MIDMAP (229)
- NEMAP (227)
- SEMAP (225)
- WRAP (222)
- SWAP (228)

Scheduled Training Opportunities

WEBINARS (2 hours)

<i>TITLE</i>	<i>CLASS NUMBER</i>	<i>DATE</i>	<i>INSTRUCTOR</i>
INTERNAL AUDITING BEST PRACTICES	5296	FEBRUARY 26, 2015	ELIZABETH GENTRY
	5339	OCTOBER 22, 2015	ELIZABETH GENTRY
CONTRACT REVIEW	5343	MARCH 19, 2015	ELIZABETH GENTRY
	5334	AUGUST 13, 2015	ELIZABETH GENTRY
DOCUMENT CONTROL AND RECORD KEEPING	5344	MARCH 26, 2015	ELIZABETH GENTRY
	5335	AUGUST 27, 2015	ELIZABETH GENTRY
ANNUAL SUBMISSION (FOR STATE LABS ONLY)	5355	SEPTEMBER 24, 2015	GEORGIA HARRIS
SOP 8 – 1 AND 2 (2 WEBINARS)	5364	APRIL 1, 2015	VAL MILLER
	5365	APRIL 2, 2015	VAL MILLER
SOP 18 – 1 AND 2 (2 WEBINARS)	5366	APRIL 8, 2015	VAL MILLER
	5367	APRIL 9, 2015	VAL MILLER

SEMINARS

<i>TITLE</i>	<i>CLASS NUMBER</i>	<i>DATE</i>	<i>INSTRUCTOR</i>
FUNDAMENTOS DE METROLOGÍA LOCATION: NIST, GAITHERSBURG, MD	5348 (SPANISH)	MARCH 2-6, 2015	GEORGIA HARRIS
MASS METROLOGY SEMINAR (MUST HAVE SUCCESSFULLY COMPLETED FUNDAMENTALS OF METROLOGY SEMINAR) LOCATION: NIST, GAITHERSBURG, MD	5333	MARCH 16-27, 2015	VAL MILLER
	5340	OCT 26-NOV 6, 2015	VAL MILLER
VOLUME METROLOGY SEMINAR LOCATION: NIST, GAITHERSBURG, MD	5356	AUGUST 17-21, 2015	GEORGIA HARRIS & VAL MILLER
ADVANCED MASS SEMINAR LOCATION: NIST, GAITHERSBURG, MD	5349	JUNE 1-11, 2015	GEORGIA HARRIS & VAL MILLER

REGIONAL MEASUREMENT ASSURANCE PROGRAM

<i>TITLE</i>	<i>CLASS NUMBER</i>	<i>DATE</i>
SEMAP, FLORIDA	5357	APRIL 13 - 16, 2015
WRAP, WASHINGTON	5358	MAY 4 - 7, 2015
NEMAP, MASSACHUSETTS	5359	SEPTEMBER 14 - 17, 2015
SWAP, MISSOURI	5360	SEPTEMBER 28 - OCTOBER 1, 2015
MIDMAP, WISCONSIN	5361	OCTOBER 5 - 8, 2015
CAMAP, PUERTO RICO	5372	OCTOBER 19 - 23, 2015

2:00 p.m. - 4:00 p.m.
Class No. 5364

April 2 (2 hr)
Webinar - NISTIR 6969, SOP 8, Part 2
2:00 p.m. - 4:00 p.m.
Class No. 5365

April 8 (2 hr)
Webinar - NISTIR 7383, SOP 19 (18)
Part 1
2:00 p.m. - 4:00 p.m.
Class No. 5366

April 9 (2 hr)
Webinar - NISTIR 7383, SOP 19 (18)
Part 2
2:00 p.m. - 4:00 p.m.
Class No. 5367

April 13 - 17 (5 days)
Handbook 133, "Checking the Net
Contents of Packaged Goods," Basic
Class No. 5362
Indianapolis, IN

April 13 - 16 (4 days)
SEMAP**
Class No. 5357
Florida

April 14 - 16 (3 days)
Train the Trainer
Class No. 5353
NIST/Gaithersburg, MD

May 4 - 7 (4 days)
WRAP**
Class No. 5358
Olympia, WA

May 4 - 8 (5 days)
Northeast Weights and Measures As-
sociation (NEWMA) Annual Meeting
Saratoga Springs, NY
Contact: James Cassidy,
jcassidy@cambridgema.gov

May 18 - 22 (5 days)
Central Weights and Measures Associ-
ation
(CWMA) Annual Meeting
Columbus, OH
Contact: Sherry Turvey,
sherry.turvey@kda.ks.gov

June 1 - 5 (5 days)
HB 133, "Checking the Net Contents of
Packaged Goods," Basic
Class No. 5345
Indianapolis, IN

June 1 - 11 (2 weeks)
Advanced Mass Seminar (Rev 2015)
Class No. 5349
NIST/Gaithersburg, MD

July 18 - 21 (4 days)
National Conference on Weights and
Measures (NCWM) Annual Meeting
Philadelphia, PA
Contact: info@ncwm.net

July 19 - 23 (5 days)
NCSL International Conference 2015
Metrology and the Quality of Life
Orlando, FL
Information: www.ncsli.org

August 10 - 14 (5 days)
Fundamentals of Metrology
Class No. 5373
NIST/Gaithersburg

August 13 (2 hr)
Webinar - Contract Review
2:00 p.m. - 4:00 p.m.
Class No. 5334

August 17 - 21 (5 days)
Volume Metrology Seminar
Class No. 5356
NIST/Gaithersburg, MD

August 19 - 20 (2 days)
NTEP Grain Analyzer Sector Meeting
Live Web Meeting
Details unavailable at this time.
Information to be posted at:
[https://www.ncwm.net/ntep/sectors/gra
in-analyzer/registration](https://www.ncwm.net/ntep/sectors/gra-in-analyzer/registration)

August 25 - 26 (2 days)
Weighing Sector Meeting
Denver, CO
Information at:
[http://www.ncwm.net/sems/event_de-
tail/2015_weighing](http://www.ncwm.net/sems/event_de-tail/2015_weighing)

August 27 (2 hr)
Webinar - Document Control and Record
Keeping
2:00 p.m. - 4:00 p.m.
Class No. 5335

September 14 - 17 (4 days)
NEMAP**
Class No. 5359
Massachusetts

September 15 - 16 (2 days)
NTEP Measuring Sector Meeting
Denver, CO
Information at:
[http://www.ncwm.net/meetings/ntep/m
easuring](http://www.ncwm.net/meetings/ntep/m-easuring)

September 16 - 17 (2 days)
NTEP Software Section Meeting
Denver, CO
Information at:
[http://www.ncwm.net/meetings/ntep/so
ftware](http://www.ncwm.net/meetings/ntep/so-ftware)

September 24 (2 hr)
Webinar - State Laboratory Annual Sub-
mission Process**
2:00 p.m. - 4:00 p.m.
Class No. 5355

September 27 - October 1 (5 days)
Western Weights and Measures Associa-
tion (WWMA) Annual Meeting
Boise, ID

Contact: Jerry Buendel,
jbuendel@agr.wa.gov

September 28 - October 1 (4 days)
SWAP**
Class No. 5360
Missouri

October 5 - 7
Central Weights and Measures Associa-
tion (CWMA) Interim Meeting
St. Charles, MO
Contact: Sherry Turvey,
sherry.turvey@kda.ks.gov

October 5 - 8 (4 days)
MidMAP**
Class No. 5361
Wisconsin

October 19 (5 days)
CaMAP**
Class No. 5372
San Juan, PR

October 19 - 23 (5 days)
HB 133, "Checking the Net Contents of
Packaged Goods," Basic
Class No. 5346
Frankfort, KY

October 22 (2 hr)
Webinar - Internal Auditing Best Prac-
tices
2:00 p.m. - 4:00 p.m.
Class No. 5339

October 26 - November 6 (2 weeks)
Mass Metrology Seminar
Class No. 5340
NIST/Gaithersburg

2016

January 10 - 13
National Conference on Weights and
Measures (NCWM) Interim Meeting
San Diego, CA
Information at:
[http://www.ncwm.net/sems/event_de-
tail/2016-interim-meeting](http://www.ncwm.net/sems/event_de-tail/2016-interim-meeting)

February 11 (2 hr)
Webinar - Conducting an Effective Manage-
ment Review
2:00 p.m. - 4:00 p.m.
Class No. 5336

March 3 (2 hr)
Webinar - Internal Auditing Best Practices
2:00 p.m. - 4:00 p.m.
Class No. 5337

*Invitation Only
**Limited to State Laboratory Program
Participants