The Massachusetts Department of Elementary and Secondary Education (ESE) has selected the UMass Donahue Institute (UMDI) to conduct both state-level and local evaluation activities for the Massachusetts Math and Science Partnership (MMSP) grants. This document provides partnership grantees with an overview of UMDI’s approach to that work through August 2015.

**Evaluation Goals and Research Questions**

The statewide and local evaluations will be guided by the following evaluation goals and research questions.

1. Facilitate partnership’s annual federal reporting and provide ESE with a statewide report of the data required for federal reporting.

2. Provide ESE and partnerships with timely formative feedback to support program implementation and refinement.
   a. Do participating educators perceive MMSP courses and follow-up activities to be of high quality and relevant to their work? To what extent do they report effects on their classroom practice? If partnerships are falling short of these goals, in what ways could their effectiveness be improved?
   b. What aspects of each partnership (relationships among partners, roles and responsibilities, structures and processes) are working well? What are the opportunities for improvement?
   c. To what extent are District Determined Measures (DDMs) helping partnerships to effectively focus their MMSP projects? What challenges are partnerships facing in selecting, developing and piloting those measures in support of MMSP?
   d. In what ways is ESE effectively supporting partnerships? What additional resources and supports would be helpful?

3. Assess statewide and partnership progress toward achievement of the program’s articulated goals.
   a. To what extent are MMSP courses being integrated into the regular in-service course offerings of higher education partners? Is that integration sustained over time? If partnerships are falling short on this goal, what are the barriers to successful integration?
   b. What progress have partnerships made in selecting, developing and piloting DDMs that measure student growth relative to subject matter standards? In what ways are they integrated into the work of the partnerships? Do participating educators find those measures to be instructionally useful?
   c. Are MMSP professional development initiatives being implemented in accordance with the Massachusetts Standards for Professional Development? How many STEM teachers in partner school districts are participating in MMSP professional development? To what extent do participants demonstrate advancement in their knowledge of subject matter standards, disciplinary practices, and student learning?
d. To what extent are partner districts integrating MMSP professional development with their district and school STEM improvement initiatives? Is that integration sustained over time? If districts are falling short on this goal, what are the barriers to successful integration?

4. Track changes in the achievement of middle school students taught by MMSP participants.
   a. To what extent are DDMs showing growth in achievement among middle school students with teachers participating in MMSP?
   b. Are there correlations between the level of teacher participation (number of courses), impact on teacher knowledge and skills (pre/post assessment) and student growth?
   c. Are there correlations between student achievement as demonstrated by the selected DDMs and results of statewide assessments? (This is a tentative question for the end of grant year three, provided that the PARRC math assessment has demonstrated validity and reliability.)

Methods and Data Sources
Statewide and local evaluations will utilize a common approach and structure drawing on a core data sources described in more detail below. Partnerships will receive customized support in relation to developing course-specific pre/post content knowledge assessments and analyzing their selected DDMs. They will also have the opportunity to add customized questions to participant surveys.

End-of-course report packages
Over the years, UMDI and ESE have established an ongoing reporting system for all partnerships, consisting primarily of end-of-course summary report packages. Those report packages include: course enrollment and completion rates; email addresses for all enrollees; individual pre/post-results of the required participant content knowledge assessment; and completed course participant background surveys. In cases where partnerships are providing data on individual participants (pre/post-results and the background surveys) those data are collected using a prescribed individual coding system which allows data to be linked anonymously across various instruments and program years.

UMDI collects this information on a regular basis and provides ESE with monthly status reports related to partnership course activity. Following the end of the grant year (August), UMDI provides annual data to the partnerships (September-October), which are responsible for submitting federal reports (October) and then compiles an annual report for ESE (December).

Although the current system works, we recognize that there may be opportunities to improve its efficiency. Over the next several weeks UMDI will examine the system to ensure that information is being captured in the most effective and efficient manner. In particular, UMDI will consider whether improvements can be made in relation to the course participant background survey which has remained unchanged for many years. It may be possible to shorten the survey itself by removing items that are no longer used for federal and state reporting. In addition, we will scrutinize which items (if any) need to be collected following each course and, accordingly, which items could be shifted to an annual participant

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1 This is an addition that is necessary to facilitate the annual participant survey described below. In order to preserve participant anonymity the email list will be separate from other data reported by participant code.
survey. This will provide room to incorporate participant feedback questions reflecting on the quality, relevance and effectiveness of each course to support ongoing improvements in partnership course offerings. UMDI will draft recommendations for discussion with ESE so that agreed upon changes can be implemented summer courses. The current system will be used for any courses ending before system changes have been completed.

Partner Interviews
Interviews with the core partners of each grant will focus on gathering data relative to evaluation goals 2 (timely formative feedback) and 3 (progress toward meeting the program goals). Other significant partners will be added at the discretion of the evaluation team with input from the partnership and ESE. These interviews will take place in late 2014 and early 2015 resulting in structured management briefs to ESE and each partnership by the end of March 2015.

Annual Participant Survey
In addition to end-of-course surveys, UMDI will develop and administer an annual survey of MMSP course participants. This survey will provide an opportunity to gather participant feedback on the partnership’s professional development program more broadly, including the follow-up component and how the individual course offerings fit together into a coherent course of study. Participants will also be able to reflect upon the extent to which their participation impacted their classroom practice. The survey will be administered online using Qualtrics survey software. UMDI will create an unduplicated email list of participants and send individualized links directly to each participant, which will allow us to track survey response rates and conduct analysis at the partnership level. UMDI will provide technical reports of survey responses at the statewide and partnership level.

This survey could also incorporate many of the participant background items that have historically been captured on the end-of-course survey (a time consuming and repetitive process for those taking multiple courses). The challenge is that some of that background information is necessary for federal reporting, which complicates the matter of timing the administration in that some partnerships commonly run their courses through the end of August which would suggest an early fall survey administration. However, that may not provide sufficient time to capture and organize the data to meet federal reporting deadlines. Another issue is the likelihood of lower response rates compared to the end-of-course surveys which have enjoyed very high compliance since they are administered during formal course time. UMDI will discuss the pros and cons with ESE and come to a decision about the content and timing of the survey as part of the proposed May-June review of the end-of-course data collection process.

District Determined Measures
UMDI will work with each partnership to fully understand the DDMs that have been selected to measure student growth and develop a process through which those partnerships can provide middle school-level data for analysis in relation to evaluation goal 4 (tracking changes in student achievement). This will result in DDM analysis reports for each partnership as well as a statewide summary report for ESE. In cases where partnerships are also serving elementary and/or high school students, UMDI will provide technical assistance to support the partnerships’ analysis of DDMs for those levels.
## Timeline and Deliverables

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<th>Deliverables</th>
<th>Timing</th>
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<td>Process Year 11 data for federal and state reporting</td>
<td>Data submitted to partnerships</td>
<td>September-October 2014</td>
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<td>Statewide summary report to ESE</td>
<td>November-December 2014</td>
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<td>Partnership Interviews</td>
<td>Management briefing memos</td>
<td>December 2014-March 2015</td>
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<td>Annual Participant Survey</td>
<td>Technical report of responses</td>
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<td>DDM Analysis</td>
<td>DDM Analysis report</td>
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