

**the Vision
Project** **AMCOA**

*Advancing a Massachusetts
Culture of Assessment*



**Quantitative Reasoning:
Looking Beyond the Numbers**

**Statewide Conference
on Assessment in
Higher Education**

Friday, October 19, 2012
8 a.m. to 3:30 p.m.

Worcester State University
Worcester, MA

AMCOA Team Members

Julie Alig, Director, Institutional Research, University of Massachusetts Lowell

Debra Anderson, Associate Professor of English, Bristol Community College

Clea Andreadis, Associate Provost, Middlesex Community College

Kristina Bendikas, Associate Dean for Assessment and Planning, Massachusetts College of Liberal Arts

Gaelan Benway, Professor of Sociology, Quinsigamond Community College

William Berry, Associate Professor, Language and Literature Department, Cape Cod Community College

Marie Breheny, Director of Assessment, Greenfield Community College

Neal Bruss, Associate Professor, English Department, University of Massachusetts Boston

Barb Chalfonte, Senior Research Analyst, Institutional Research, Springfield Technical Community College

Susan Chang, Director of Assessment, Framingham State University

Christopher Cratsley, Director of Assessment, Fitchburg State University

Thomas Curley, Dean of Humanities, Berkshire Community College

Neal DeChillo, Associate Provost and Dean, College of Health and Human Services, Salem State University

Melissa Fama, Vice President of Academic Affairs, Mount Wachusett Community College

Kate Finnegan, Professor of Education, Greenfield Community College

Timothy Flanagan, President, Framingham State University

Lane Glenn, President, Northern Essex Community College

James Gubbins, Assistant Professor, Salem State University

Paula Haines, Coordinator First-Year Writing Program, University of Massachusetts Lowell

Lora Henderson, Director of Assessment, Springfield Technical Community College

Lois Hetland, Faculty, Art Education, Massachusetts College of Art and Design

Peter Johnston, Dean of Academic Advising and Assessment, Massasoit Community College

Elizabeth Johnston-O'Connor, Director of Institutional Research and Effectiveness, Cape Cod Community College

Rita Jones-Hyde, Assistant Professor of Humanities and Fine Arts, Massasoit Community College

Monica Joslin, Dean of Academic Affairs, Massachusetts College of Liberal Arts

Kathy Keenan, Associate Vice President for Planning and Research, Massachusetts College of Art and Design

Nina Keery, Professor of English, MassBay Community College

Susan Keith, Associate Professor of English and the English, Department Chair, Massasoit Community College

Terri Kinstle, Associate Professor of Psychology, Holyoke Community College

Donna Kuizenga, Special Assistant to the Provost, University of Massachusetts Boston

David Langston, Professor of English/Communications, Massachusetts College of Liberal Arts

Paul Laverty, Professor of Mathematics, Mount Wachusett Community College

David Leavitt, Director of Institutional Research, Bunker Hill Community College

Carol Lerch, Assistant Vice President of Assessment and Planning, Worcester State University

Mary Lynch, Director of Institutional Research, Massasoit Community College

Susan Madigan, Dean of Health Services, Cape Cod Community College

Charlotte Mandell, Vice Provost for Undergraduate Education, University of Massachusetts Lowell

Elise Martin, Associate Dean of Assessment, Middlesex Community College

Marilyn Martin, Professor of Developmental English and Speech, Quinsigamond Community College

Kate McLaren, Director of Institutional Assessment, Massachusetts Maritime Academy

Timothy McLaughlin, Chair of the English Department, Bunker Hill Community College

Maureen Melvin Sowa, Professor of History, Division of Social and Behavioral Sciences, Bristol Community College

Brenda Mercomes, Academic Affairs Vice-President, Roxbury Community College

Javad Moulai, STEM Division Faculty Member, Roxbury Community College

Bonnie Orcutt, Professor of Economics and Chair, Liberal Arts and Sciences Curriculum, Worcester State University

Mark Patrick, Assistant Dean of Academic Affairs, Massachusetts Maritime Academy

Lisa Plantefaber, Associate Dean, Institutional Research and Assessment, Westfield State University

Charles Prescott, Assistant Professor of English, Berkshire Community College

Benjamin Railton, Associate Professor of English, Coordinator of American Studies, Fitchburg State University

Saradha Ramesh, Assessment Coordinator, North Shore Community College

Yves Salomon-Fernandez, Dean of Institutional Planning, Research and Assessment, MassBay Community College

John Savage, Professor of Chemistry, Middlesex Community College

Nancy Schoenfeld, Dean of Human Services & Science, Quinsigamond Community College

Michelle Scribner MacLean, Professor, College of Education, University of Massachusetts Lowell

Tammy Silva, Director, Office of Institutional Research, University of Massachusetts Dartmouth

Phillip Sisson, Provost and Vice President of Academic & Student Affairs, Middlesex Community College

Ruth Slotnick, Director of Articulation and Learning, Assessment, Mount Wachusett Community College

Dawne Spangler, Director of the Center for Teaching, Learning and Assessment, North Shore Community College

Martha Stassen, Assistant Provost, Assessment & Educational Effectiveness, University of Massachusetts Amherst

Susan Taylor, Professor, Mount Wachusett Community College

Judy Turcotte, Director of Planning and Assessment, Holyoke Community College

Suzanne Van Wert, Professor of English, Northern Essex Community College

Laura Ventimiglia, Dean for Academic Assessment, Curriculum, and Special Programs, North Shore Community College

Michael Vieira, Associate Vice President for Academic Affairs, Bristol Community College

Karen Vorwerk, Associate Professor of Mathematics, Westfield State University

Lori Weir, Instructional Design Specialist, MassBay Community College

Ellen Wentland, Associate Dean of Academic and Institutional Effectiveness, Northern Essex Community College

Marcellette Williams, Senior Vice President, Academic Affairs, University of Massachusetts President's Office

Ellen Zimmerman, Associate Vice President for Academic Affairs, Framingham State University

Conference Agenda

| | Location ▼ |
|--|-------------------------|
| 8:00 a.m. Registration and Coffee/Refreshments | Blue Lounge |
| 9:00 a.m. Opening <i>Dawne Spangler, Conference Chair and Director of the Center for Teaching, Learning and Assessment, North Shore Community College</i> Welcome <i>Dr. Charles Cullum, Provost, Worcester State University</i> Remarks <i>Maureen Melvin Sowa, AMCOA Co-Chair, Professor of History, Bristol Community College</i> | Blue Lounge |
| 9:45 a.m. Breakout Sessions (<i>Participants will attend one session each; see descriptions and presenters on pages 4–6.</i>) | |
| Session A.1 <i>More Than One Way to Assess QR? Problem Solving Through Quantitative Literacy and Inquiry and Data Analysis</i> <i>by Fitchburg State University</i> | North Auditorium |
| Session A.2 <i>Incorporating Quantitative Reasoning in Your Course: Examples from Across Disciplines</i> <i>by Northern Essex Community College</i> | Foster |
| Session A.3 <i>Assessing and Reporting Degree Qualifications Profile Competencies in the Context of Transfer</i> <i>by UMass Lowell and Middlesex Community College</i> | South Auditorium |
| Session A.4 <i>If Not Algebra, Then What?</i> <i>by UMass Boston</i> | President's Dining Room |
| Session A.5 <i>QR in Action at Holyoke Community College</i> | Fallon |
| 11:00 a.m. Breakout Sessions (<i>Participants will attend one session each; see descriptions and presenters on pages 4–6.</i>) | |
| Session B.1 <i>More Than One Way to Assess QR? Problem Solving Through Quantitative Literacy and Inquiry and Data Analysis</i> <i>by Fitchburg State University</i> | North Auditorium |
| Session B.2 <i>Incorporating Quantitative Reasoning in Your Course: Examples from Across Disciplines</i> <i>by Northern Essex Community College</i> | Foster |
| Session B.3 <i>Assessing and Reporting Degree Qualifications Profile Competencies in the Context of Transfer</i> <i>by UMass Lowell and Middlesex Community College</i> | South Auditorium |
| Session B.4 <i>If Not Algebra, Then What?</i> <i>by UMass Boston</i> | President's Dining Room |
| Session B.5 <i>QR in Action at Holyoke Community College</i> | Fallon |
| 12:00 p.m. Lunch and Networking | Blue Lounge |
| 12:45 p.m. Keynote Address: "What Does an English Professor Have to Say about Quantitative Reasoning?" <i>Susan Albertine, Vice President, Association of American Colleges and Universities (AAC&U)</i> | Blue Lounge |
| 1:30 p.m. QR Scoring of Student Work Samples Using the VALUE LEAP Rubric <i>by Holyoke Community College</i> (<i>See description and presenters on page 6.</i>) | Blue Lounge |
| 3:00 p.m. Discussion and Closing <i>Pat Crosson, Senior Advisor for Academic Policy, Massachusetts Department of Higher Education</i> <i>Peggy Maki, Assessment Consultant for the AMCOA Project</i> <i>Bonnie Orcutt, AMCOA Co-Chair; Vice Chair of the Massachusetts Team; State Partner Team; and Professor of Economics, Salem State University</i> | Blue Lounge |
| 3:30 p.m. Close | |

Breakout Session Descriptions

Session A.1 and B.1

More Than One Way to Assess QR? Problem Solving Through Quantitative Literacy and Inquiry and Data Analysis *by Fitchburg State University*

Presenters: *Dr. Christopher Cratsley, Director of Assessment*
Dr. Jennifer Berg, Assistant Professor of Mathematics
Dr. Elizabeth Gordon, Assistant Professor of Geo/Physical Sciences

Description: One of the objectives of the Liberal Arts and Sciences Curriculum at Fitchburg State University is to teach students Problem Solving. This objective suggests that students will both be able to “form Problem Solving strategies and evaluate their effectiveness” and “analyze and interpret data as a means to evaluate arguments and make informed choices.” Our initial efforts to assess this objective focused on using a single rubric to evaluate quantitative approaches to Problem Solving. Based on data from this rubric, faculty feedback and review of the AAC&U’s VALUE rubrics, our Liberal Arts and Sciences Council developed two separate rubrics for Problem Solving. We will discuss the process we used to develop these rubrics, provide data from these rubrics, and outline how we have utilized protocols developed for Critical Friends Groups to engage faculty in dialogs about using the data to improve student learning.

Expected Outcomes:

1. Describe a process for developing quantitative approaches to Problem Solving rubrics
2. Identify the different features of quantitative reasoning that occur in student work in math and science
3. Outline a process and protocols for engaging faculty at your institution to use data from the rubrics to improve student learning

Session A.2 and B.2

Incorporating Quantitative Reasoning in Your Course: Examples from Across Disciplines *by Northern Essex Community College*

Presenters: *Maria Carles, Associate Professor of Natural Sciences*
Euthemia Gilman, Coordinator and Adjunct Faculty, Elementary and Middle High School Education Programs
Patricia Machado, Associate Professor of Economics, Program Coordinator for Liberal Arts
Rory Putnam, Assistant Professor, Clinical and EMT Basic Program Coordinator, EMS/Paramedic Program Clinical Coordinator
Ellen Wentland, Associate Dean, Academic and Institutional Effectiveness

Description: While Quantitative Reasoning (QR) can be intentionally included in mathematics classes, inclusion in areas outside of math emphasizes its relevance to any discipline and assists in skill development. NECC faculty are working on incorporating QR on an intensive level into courses across the curriculum. Courses approved as QR intensive satisfy detailed criteria, and course syllabi include outcomes derived from the VALUE rubric. In this session, faculty associated with *Pharmacology for the Paramedic*, *Diversity and Multiculturalism in Education*, *Macro and Micro Economics*, and *Anatomy and Physiology* will describe the assignments and assessment tools used in their newly approved QR intensive courses.

Expected Outcomes:

1. Describe how instructional content and assignments in various disciplines can address outcomes linked to the VALUE rubric
2. Adapt the model of QR assignments and assessment tools to classes and curricula of their institution

Session A.3 and B.3

Assessing and Reporting Degree Qualifications Profile Competencies in the Context of Transfer *by UMass Lowell and Middlesex Community College*

Presenters: *Michelle Scribner-MacLean, Professor, College of Education, University of Massachusetts Lowell*
Elise Martin, Dean of Assessment, Middlesex Community College

Description: AAC&U's Quality Collaborative Project, "Assessing and Reporting Degree Qualifications Profile Competencies in the Context of Transfer," brings together nine pairs of institutions from across the country to pilot the Lumina Foundation's Degree Qualifications Profile (DQP) to improve the development of essential learning outcomes for students transferring between two- and four-year colleges. The University of Massachusetts Lowell and Middlesex Community College, one such pair, have formed inter-campus teams of faculty teaching in the high-transfer programs of Business, Biology, Criminal Justice and Psychology to develop assessments for one such outcome, Quantitative Literacy (QL), at both the associate's and bachelor's degree levels. These disciplines require QL development and, thus, lend themselves to the assessment of that development over time. We will share our mapping of the Lumina DQP QL benchmarks to the QL LEAP VALUE rubric, and provide examples of the development of draft assessments and supporting work being developed by faculty at the 200 and 400 levels to address LEAP QL competencies.

Expected Outcomes:

1. Describe the link between the Lumina DQP QL (Quantitative Literacy) benchmarks and the QL VALUE rubric
2. Identify faculty and disciplines on their campus to approach on developing common learning outcomes for students transferring between two and four year colleges

Session A.4 and B.4

If Not Algebra, Then What? *by UMass Boston*

Presenter: *Mark Pawlak, Director of Academic Support and Quantitative Reasoning Programs*

Description: For more than a decade, UMass Boston has offered Quantitative Reasoning (QR) as an alternative to College Algebra for non-STEM majors. A recent revision to the QR curriculum has tried to answer the questions: Ten years from now, what do we want students to remember and use from the course? In particular, how do we expect them, as citizens and workers, to use what they learned as they encounter numerical information? How will they use current technology as a tool and a resource?

This talk will provide an overview of the QR course, the habits of mind it aims to impart, and an overview of its focus on working with students as consumers of quantitative information instead of producers of mathematics. Examples will be shared of the real world problems drawn from the news with relevance to history, economics, sociology, and other areas. Our QR program's robust model for assessing teaching and learning will also be discussed.

Expected Outcomes:

1. Describe one institution's approach to incorporating QR (Quantitative Reasoning) tools, information and skills into their students lives.
2. Identify ways to adapt QR focus and tools into math and other disciplines on their campus.

Session A.5 and B.5

QR in Action at Holyoke Community College

Presenters: Catherine Dillard, Assistant Professor of Mathematics
Nicole Hendricks, Assistant Professor of Criminal Justice
Dr. Laura Hutchinson, Assistant Professor of Health, Fitness & Nutrition
Vivian Leskes, Professor of Language Studies
Dr. Kevin Wentworth, Associate Professor of Biology

Description: It's mid-way through the semester and nine faculty at HCC are busy implementing QR modules in their courses with the help of fellow faculty "QR experts." Four of these faculty representing Biology, Nutrition, Criminal Justice and English as a Second Language will share their experiences so far, including their plans, challenges, and insights.

Expected Outcome:

Describe the planning process of how one college implemented QR modules across various disciplines

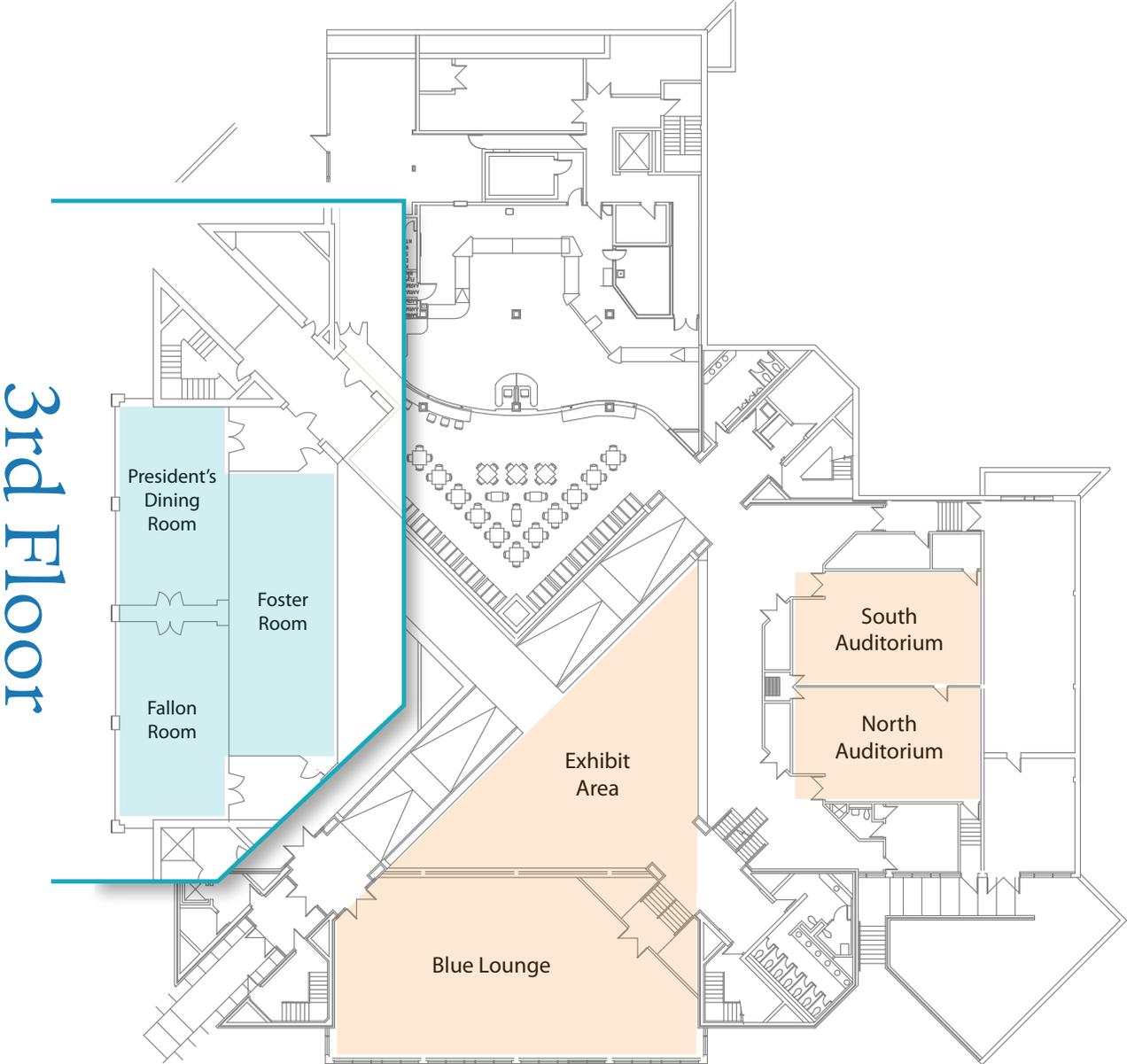
Afternoon Session Description

QR Scoring of Student Work Samples Using the VALUE LEAP Rubric *by Holyoke Community College*

Presenters: Catherine Dillard, Assistant Professor of Mathematics
Dr. Terry Kinstle, Assistant Professor of Psychology
Nicole Hendricks, Associate Professor of Criminal Justice
Judith Turcotte, Director of Planning and Assessment

Description: Hands-on, small group session led by facilitators from Holyoke Community College will focus on applying quantitative reasoning rubrics applied to sample student work.

Map of Session Locations



1st Floor



the **Vision**
Project

A PUBLIC AGENDA for
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from the Davis Educational Foundation awarded to the
Massachusetts Department of Higher Education.

Additional Special Thanks to:

CONFERENCE CHAIR

Dawne Spangler, North Shore Community College

CONFERENCE PLANNING GROUP

Bonnie Orcutt, Worcester State University

Saradha Ramesh, North Shore Community College

George Kohout, Department of Higher Education

Peggy Maki, Department of Higher Education

James Gubbins, Salem State University

HOST INSTITUTION

Barry M. Maloney, Worcester State University

Dr. Charles Cullum, Worcester State University

KEYNOTE SPEAKER

Susan Albertine, Association of American Colleges and Universities (AAC&U)

And the Presidents, Vice Presidents, and Chief Academic Officers
of the Massachusetts Public Higher Education System