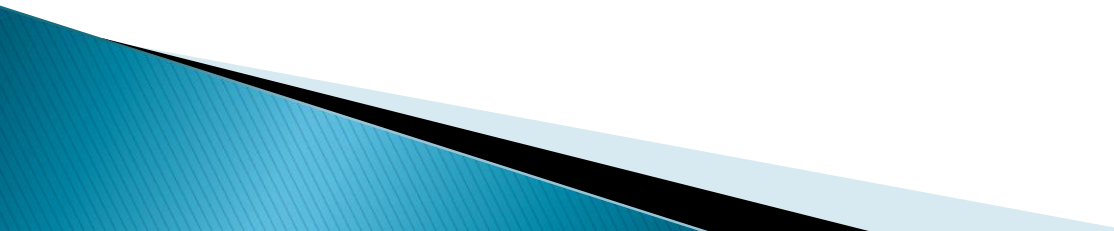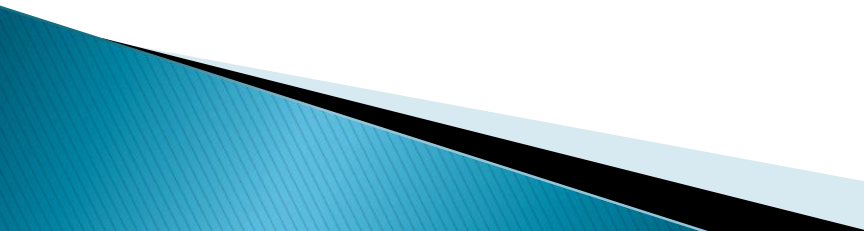# Mid-Program General Education Assessment on Quantitative and Scientific Literacy

Sue Mente
Alverno College
Milwaukee, WI
October 13, 2012
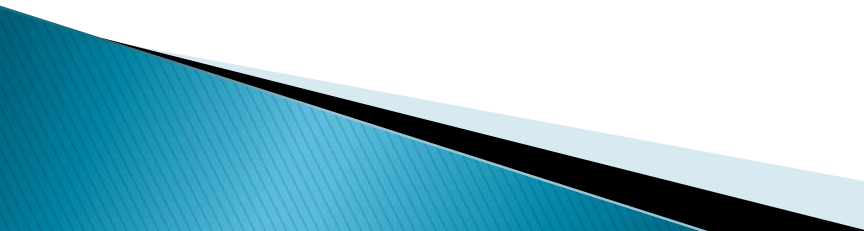
Alverno demographics

- 72% first generation

- 40% racial/ethnic minority

- 60% receive Pell Grants

- Average age 25 years old

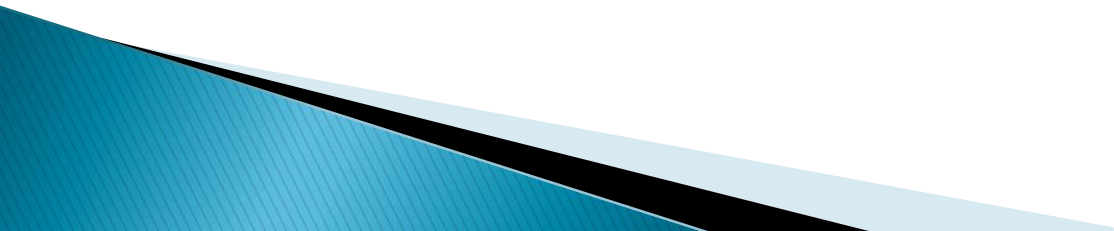- 58% need at least one developmental math class

Placement in curriculum

- Approximately 4th semester

- Prerequisite:
  - Demonstrated beginning level quantitative literacy criteria
  - Demonstrated level 3 problem solving and analysis ability criteria
  - Completed general education natural science courses
  - Completed general education communication courses

Assessment process

- External assessment
  - ◦ Separate from courses
  - ◦ Opportunity to transfer and integrate knowledge and abilities across courses and time
  - ◦ Judged independently of previous performance
  - ◦ Assessed by someone other than course instructor
  - ◦ Results not tied to course, but tied to graduation

- Significant Self assessment component

- Face to face feedback with assessor

Purpose for students

- Show that you can draw on what you have learned in a variety of courses and other learning experiences

- Apply your learning to a new situation

- Review and reflect on your past performances in order to identify learning goals and plans that can help you strengthen your knowledge and abilities in the future

Outcomes

- Accurately interpret and create representations of quantitative data.

- Critically evaluate data and make meaningful relationships among multiple sources of information about scientific questions.

- Effectively evaluate a data-driven problem-solving process.

- Clearly articulate connections between present performance and ongoing development of own abilities.
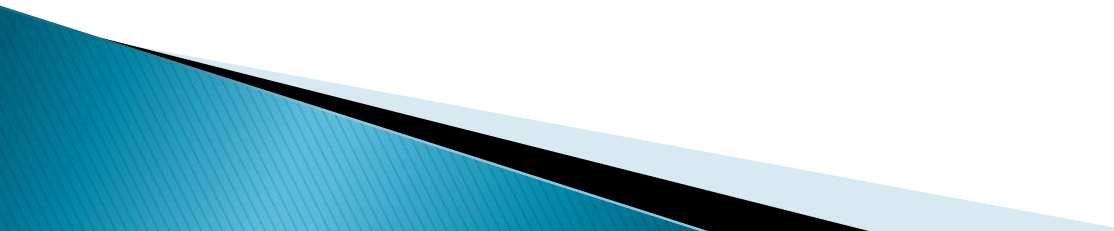
Assessment Record

Criterion	Ability	Evidence	Met	Partially Met	Not Met	Comments What was distinctive? How was criterion not met?
Correctly illustrate data using a spreadsheet	Quant Lit Level 2 & Analysis Level 3	Part 1, Qst. 9				
		Part 2, Qst. 7				

Context

This assessment is on a topic – bottled water – relevant to your daily life. Information about some of the controversies pertaining to bottled water will be presented during the assessment. You'll have an opportunity to examine your own practices regarding bottled water. Even more important, after considering data and other information about bottled water, you'll be asked to discuss implications for your personal decisions regarding water. In other words, how will your analysis of information and your use of the scientific method help you make informed decisions regarding your own behavior?

Assessors

- Recruitment/faculty requirements
  - Faculty required to assess an external assessment

- Training
  - Training session with sample student answers
  - Key criteria components/motivation discussed

- Assessor coaches
  - Coach available for assessor support during assessments

- Challenges
  - Attitude
  - Expectation

Results

- Must meet criteria for all outcomes to be successful
- First year (n = 232)
  - 80% successful on assessment in first attempt
    - 86% successfully demonstrated QL criteria
    - 81% successfully demonstrated Analysis criteria
    - 82% successfully demonstrated Problem solving criteria
    - No significant differences between different schools

- Cumulative results (n = 495)
  - 75% successful on assessment in first attempt
  - 95% successful within two attempts (4% have not reassessed)

Results and Responses

- Student comments
  - should have prepared better
  - see connections I hadn't seen before
  - type of graphs/data different than what I see in my discipline

- Assessment revisions
  - Minimal to help with question clarity only

- Curricular implications
  - Workshop for faculty on results
  - Quantitative Literacy roundtable
  - More work on creating visual representations and describing data in QL courses

Questions and Comments?

Bottled Water Consumption Per Person in the United States, 1976-2007

Source: BMC