

# Principles of Chemistry I

University of Maryland Eastern Shore



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# Introduction

- University of Maryland Eastern Shore, Princess Anne MD
  - Thelma B. Thompson, Ph.D., President
  - Charles Williams, Ph.D., Vice President for Academic Affairs
- Goals of the Maryland Course Redesign Initiative
  - Adopt new methods to improve student learning outcomes
  - Reduce institutional costs
  - Release instructional resources for other purposes
- Principles of Chemistry I Redesign Team at UMES
  - Joseph M. Okoh, Ph.D., Yan Y. Waguespack, Ph.D., Gladys G. Shelton, Ph.D., Charles Williams, Ph.D., Amelia G. Potter, James R. Hayes

# Principles of Chemistry I

- Population
  - Caters to science and health professions students
    - ~220 per fall semester/~110 per spring semester
    - ~73% Freshman
- Academic Issues
  - Inconsistent knowledge of incoming students
  - 55% student retention rate
  - Lack of coordination among the professors teaching the seven sections of the course leading to course drift and inconsistent learning outcomes

# Principles of Chemistry I: Replacement Model

<b>Course</b>	<b>Section Size</b>	<b>Meetings</b>	<b>Sections / Professors per academic year</b>	<b>Learning Assistant</b>
Traditional Chemistry 111	30-40	MWF 50 min	7/6	No
Pilot Chemistry 111E	Up to 80	M 75 min + 2h in computer lab Recitation offered	1	Yes
Chemistry 111E	Up to 114	MW 50 minutes + 1h in computer lab	3/2	Yes

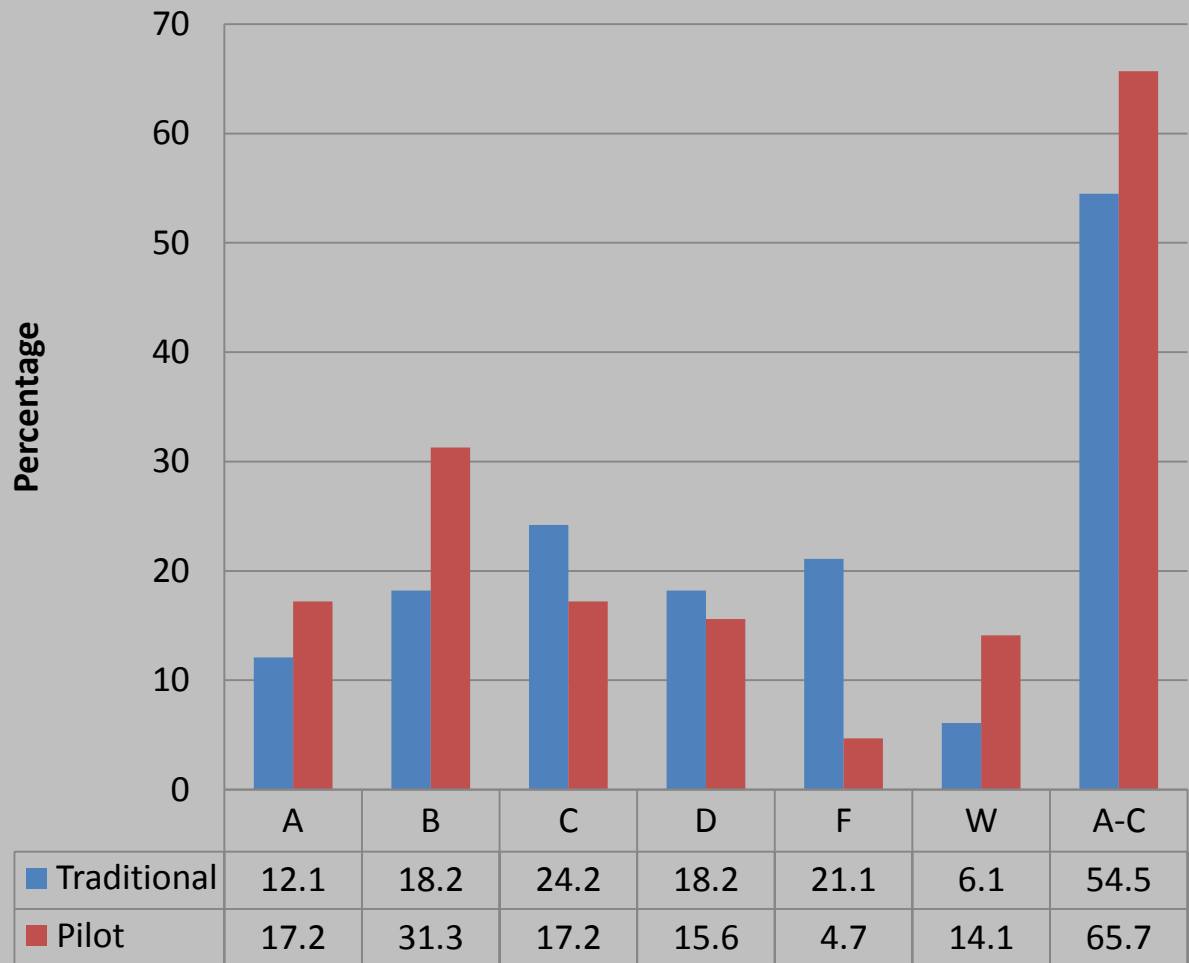
# Infusion of Technology

- Blackboard
- CengageNOW <http://login.cengage.com/sso//>
  - Tutorials and exercises that can be repeated in an attempt to earn a perfect score
  - Hints/Answers -> Instantaneous grading
  - Grade management
  - Monitors time-on-task
- Establishment of a Chemistry Computer Lab

# Individualized Assistance

- Undergraduate Learning Assistant (ULA) and Learning Assistant (LA)
  - monitor students' time-on-task in computer lab
  - Offer on-demand assistance
- Cumulative grade posted every Monday
  - Office door/Blackboard
  - CengageNOW grade available in student account
- Call or text from 8AM-9PM

# Performance Assessment



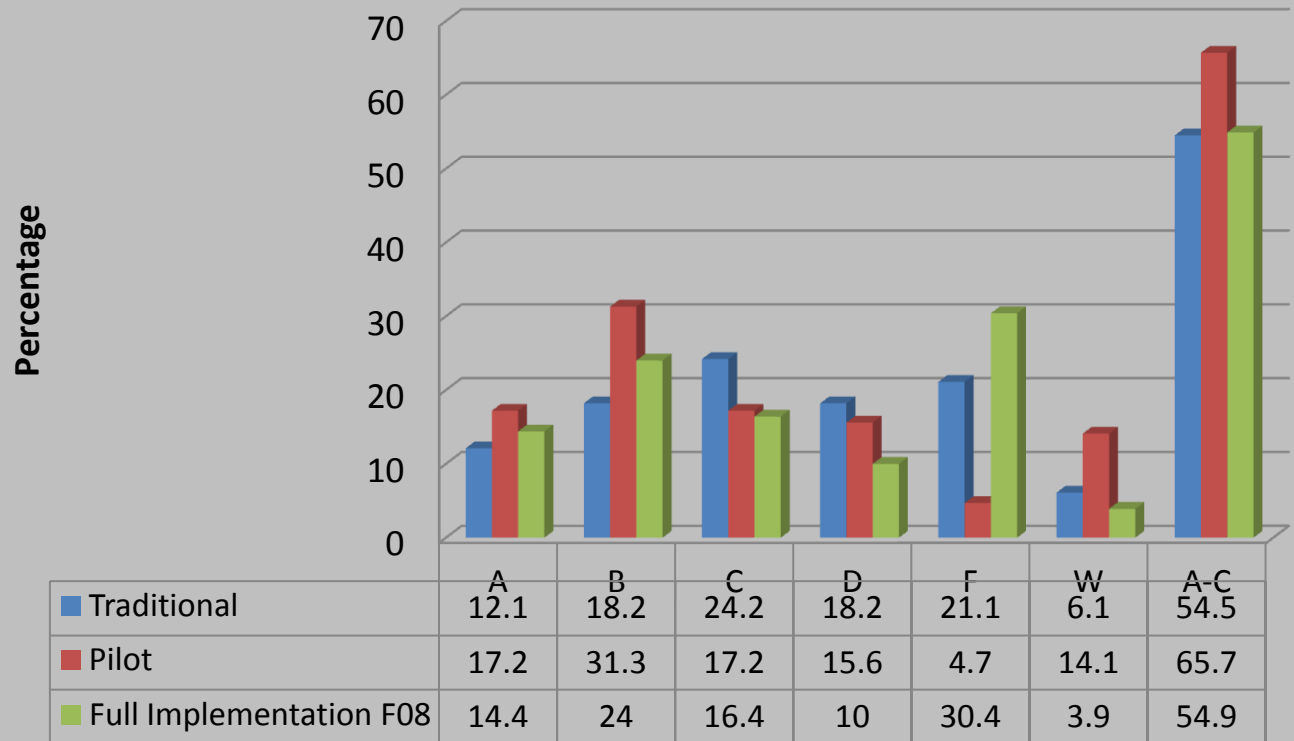
## Traditional

3, 50 minute class periods

## Pilot

75 minute class period, 2h in designated computer lab, 1 full-time LA

# Performance Assessment



## Traditional

3, 50 minute class periods

## Pilot

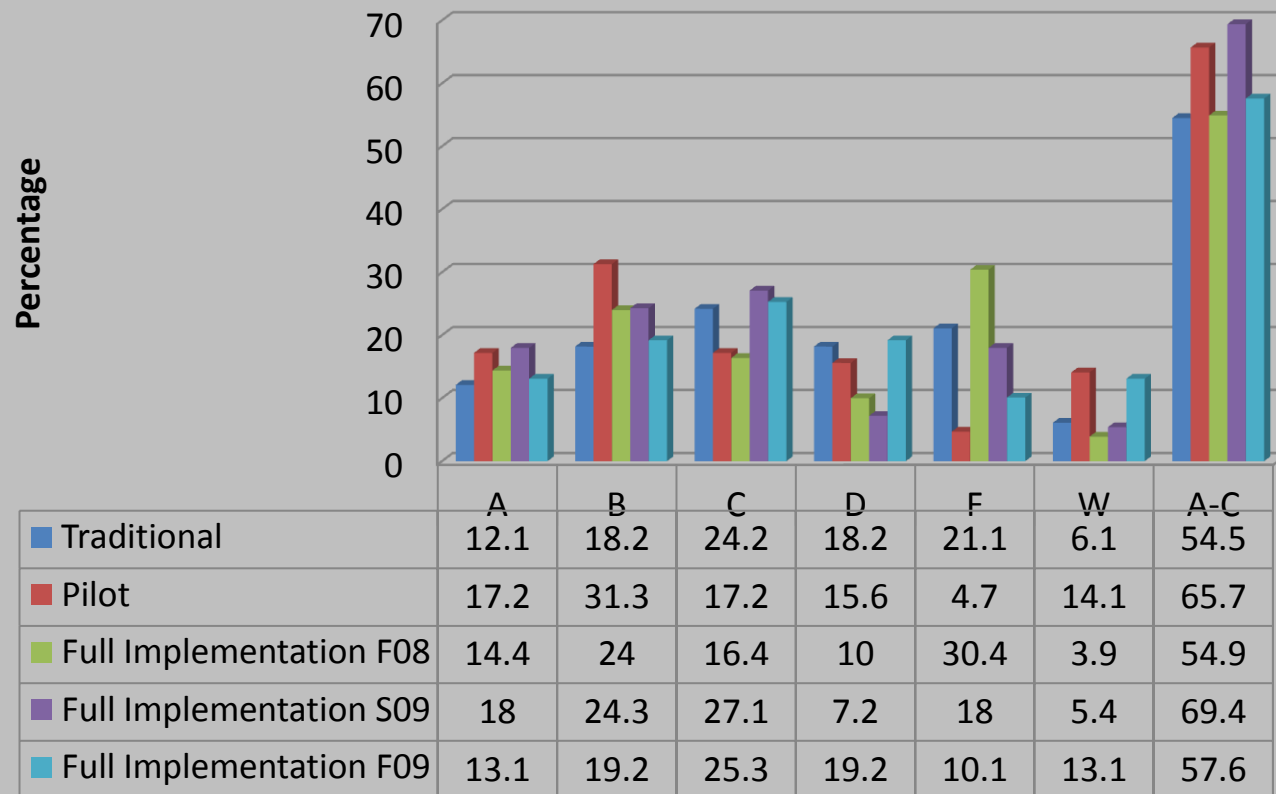
75 minute class period, 2h in designated computer lab, 1 full-time LA

## Full Implementation F08

2, 50 minute class periods, 1h in campus computer lab, 1 full-time LA + one ULA



# Performance Assessment



## Traditional

3, 50 minute class periods

## Pilot

75 minute class period, 2h in designated computer lab, 1 full-time LA

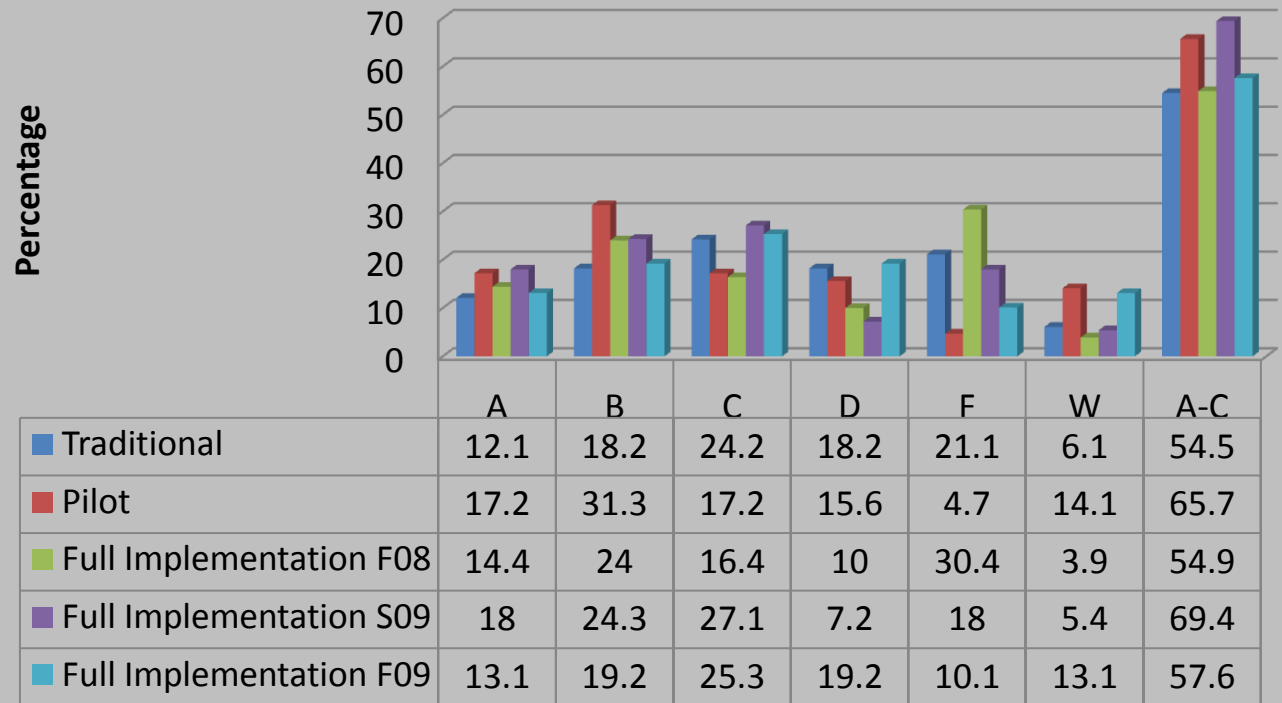
## Full Implementation F08

2, 50 minute class periods, 1h in campus computer lab, 1 full-time LA + one ULA

## Full Implementation S09

2, 50 minute class periods, 1h in chemistry computer lab, 1 full-time LA

# Performance Assessment



## Traditional

3, 50 minute class periods

## Pilot

75 minute class period, 2h in designated computer lab, 1 full-time LA

## Full Implementation F08

2, 50 minute class periods, 2h in campus computer lab, 1 full-time LA + one ULA

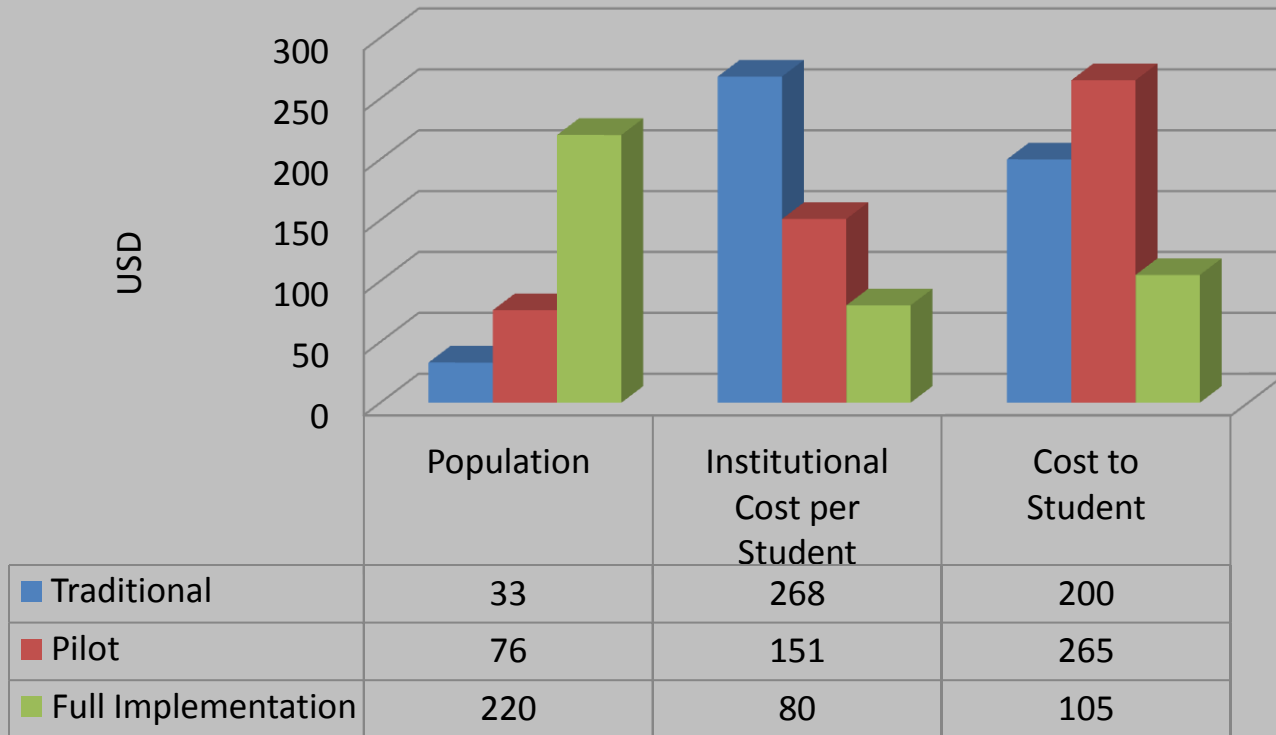
## Full Implementation S09

2, 50 minute class periods, 1h in chemistry computer lab, 1 full-time LA

## Full Implementation F09

2, 50 minute class periods, 1h in chemistry computer lab, 7 tutors, 2 ULAs, one TA

# Cost Assessment



# Implementation Issues

- Tech savvy students and faculty
- Funding for a computer laboratory and learning assistants
- FTE fulfillment

# Acknowledgements

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- Eun Yim-Kim

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