



# Quantitative Reasoning in the Contemporary World

NSF DUE 0 -715039



## ORCW at Central Washington University

Course taught - Fall 2008  
 Enrollment - 24 students  
 QL Requirement -  
 Satisfies our "Math for Liberal Arts Major" requirement.  
 Other sections of Math 101 use Bennett and Briggs text.  
 Text: *Case Studies for Quantitative Reasoning* by Madison and Dingman  
 10 week quarter  
 5 days a week  
 50 minute class period

### Overview of Class

- Readings from "A Case for Quantitative Literacy" & "Importance of Quantitative Literacy"
- Students read and completed 11 case studies from text: small group work, class discussions, individual write ups
- Additional assignments: Create your own index, Medical Accuracy, Credit Card case study, reading of Best's "Birds-Dead and Deadly: Why Numeracy Needs to Address Social Construction"

### Assessment

For students	
4 quizzes	33%
Homework	42%
News of the Day	17%
Attendance	8%

### Of the course

Pre/post written assessment  
 Pre/post MC test (+2.5/17)

## Project Summary

The ability to reason about issues that mix words and numbers is now an essential competency for US residents. The proliferation of quantitative data and analyses has reached all aspects of life in the US, including informed participation in democratic processes. This project continues the development of an educational infrastructure about an innovative quantitative reasoning course, created by Bernard L. Madison that has evolved through its offering at the University of Arkansas over the past seven semesters. The project includes making the course transportable, adaptable, and more effective and creating assessments and scoring rubrics to both measure learning in the course and to compare that learning to the learning in two other courses, one somewhat similar and one traditional. The innovative course derives from a collection of newspaper and magazine articles and is organized by processes of QR and not by mathematical or statistical topics. The project has produced the first draft of case studies of QR-based media articles and an accompanying volume documenting the learning results, pedagogical strategies, and a guide for using the case studies in a QR course is in progress.

## ORCW at University of Arkansas

First course offered in Fall '04 to volunteers; Spring & Fall '05 for journalism majors; Spring '06 to general audience  
 NSF-funded QRCW project bridged the efforts at 3 universities regarding instruction in Quantitative Literacy

40 students per section; meetings twice a week for 80 minutes each; 30 total meetings per semester.

Fall '08: began using *Case Studies for Quantitative Reasoning* by Madison and Dingman (previously used notes)

Mathematical topics include measurement, number sense, rates of change, probability & statistics

### Assessment

For students	
HW, Quizzes, Class Investigations	(50%)
Midterm Exam	(20%)
Final Exam	(20%)
Attendance & Participation	(10%)

### Of the course

Pre/Post MC Test (+3/17)  
 -other sections show much smaller gains)  
 Strong support from faculty in arts, humanities, and social sciences  
 Positive feedback from students  
 -course suited to their needs and likes

## ORCW at Hollins

Course taught - Spring 2008 and Fall 2008  
 Enrollment - Approx 20 students each time  
 Two QR Requirements for General Education - q & Q  
 Satisfies our "q" requirement.  
 Required for students who do not earn "q" via entering assessment.

Main Text: Bennett & Briggs  
 Supplemented with *Case Studies for Quantitative Reasoning* by Madison and Dingman  
 13 week semester  
 3 days a week  
 1 hour class period

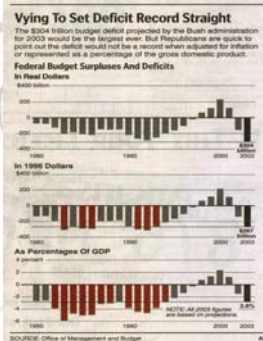
### Overview of Class

- Two class sessions per week based on Bennett & Briggs text
- One class session per week is a "news" case study
- Four case studies completed with Excel
- Six "news" case study assignments, resulting in a QR in the news portfolio

### Assessment

Students	(Total of 850 points)
Homework	(100 points)
Three in class tests	(300 points)
Four excel labs	(100 points)
Six "QR in the News"	(100 points)*
Final Exam	(150 points)
Participation	(100 points)
*definitely the most significant part of the course	
Course	
Pre/post MC test	(+1.5/17)
Written paragraph on "importance of QR"	

## GOP Disputes



Bernie Madison  
 Stuart Boersma  
 Caren Diefenderfer  
 Shannon W. Dingman

University of Arkansas  
 Central Washington University  
 Hollins University  
 University of Arkansas

