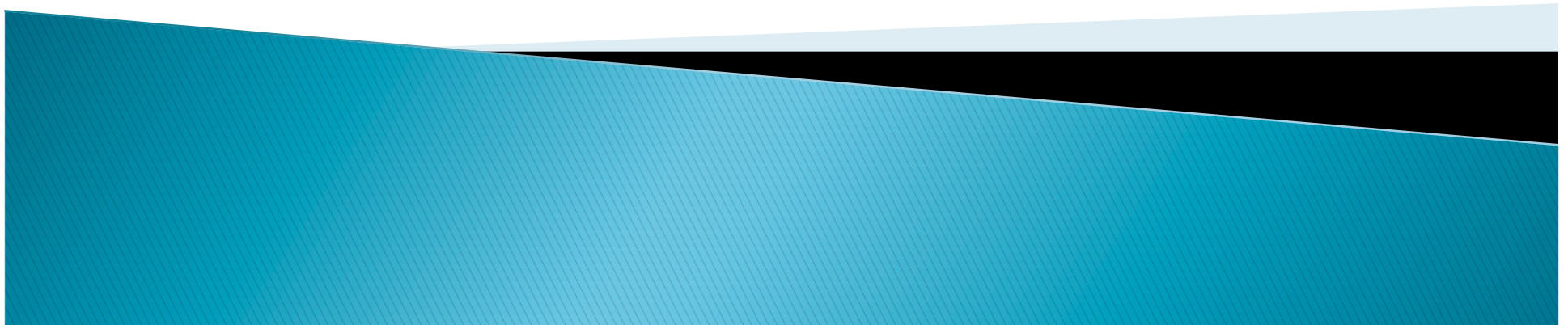


Using Media Articles to Drive a Quantitative Literacy Course

- Stuart Boersma, Central Washington Univ.
- Caren Diefenderfer, Hollins University
- Shannon Dingman, U. of Arkansas
- Bernie Madison, U. of Arkansas



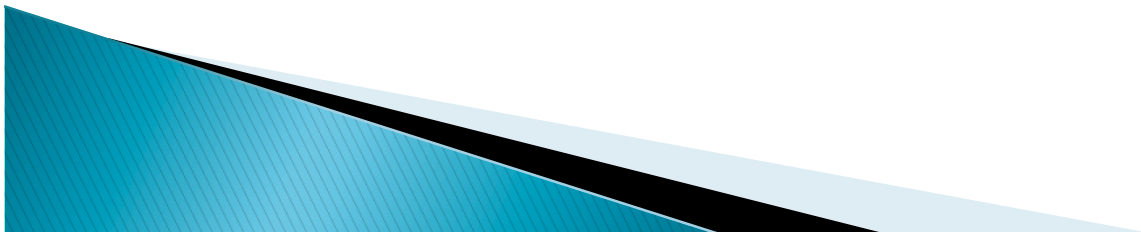
Origins of QRCW

- ▶ Concerns regarding Finite Mathematics courses spurred initial development at the 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



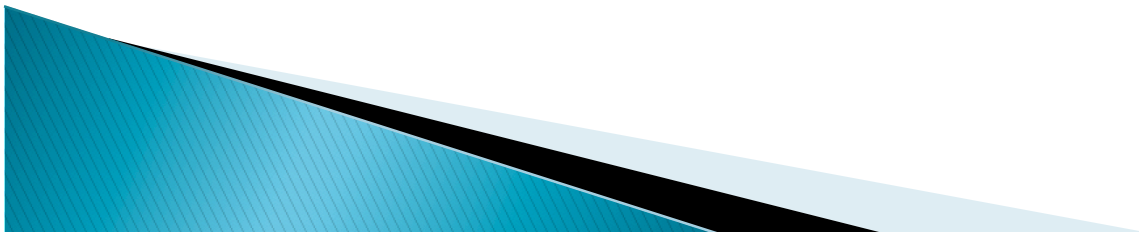
QRCW at the University of Arkansas

- ▶ First course offered in Fall '04
- ▶ Currently 3 sections offered; by Fall '09, department plans 5-6 sections using QRCW materials
- ▶ Other sections of MATH 2183 currently use *For All Practical Purposes*
- ▶ Course requirements:
 - College Algebra prerequisite
 - Satisfies mathematics requirement for BA degree



QRCW at the University of Arkansas

- ▶ 40 students per section; meetings twice a week for 80 minutes each; 30 total meetings per semester
- ▶ Fall '08: began using Madison & Dingman's "Case Studies for Quantitative Reasoning" (note packets used prior)
- ▶ Mathematical topics include measurement, number sense, rates of change, probability & statistics



QRCW at the University of Arkansas

- ▶ Classroom organized for group work and class investigations
- ▶ Students invited to share “News of the Day” and to discuss the mathematics involved
- ▶ Assignments include exercises and case studies from the textbook as well as in-class investigations and unit quizzes



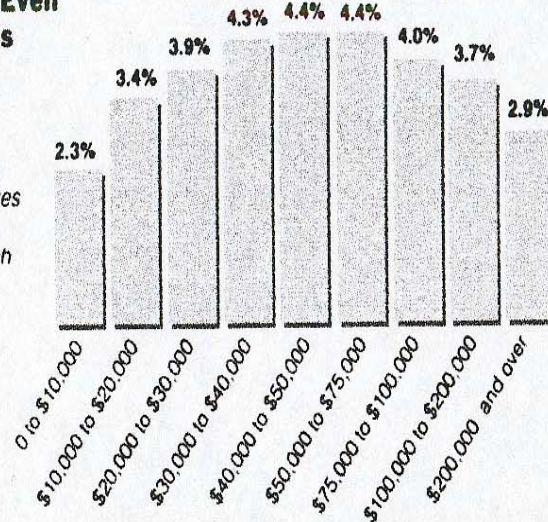
ON THE OTHER HAND . . .

Two Views of a Tax Cut

Republican Math: An Even Cut Across the Board

How much taxes
would fall for
families in each
group

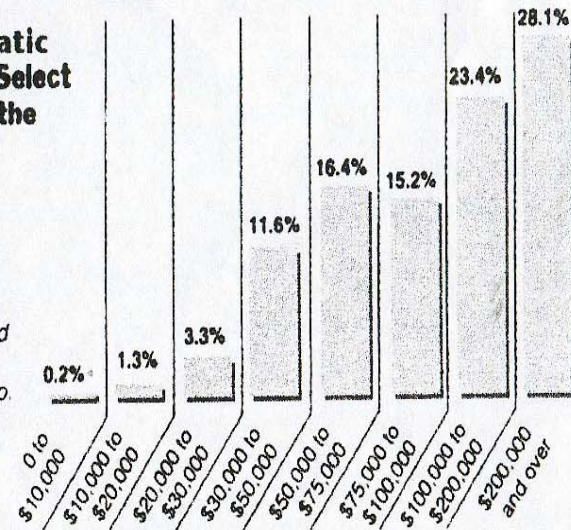
Source: House
Ways and
Means
Committee



Democratic Math: A Select Few Get the Benefits

SHARE OF
TAX CUTS
Share of tax
cuts assigned
to each
income group

Source:
Treasury Dept



Source: *New York Times*, April 7, 1995.

Sample questions from the case study:

- Describe what the data in each of these graphs represent. Can both of these graphs be correct? Explain why or why not.
- If one assume the tax cut is \$245 billion, how much are taxes cut (in dollars) for families in the \$200,000 and over income bracket?
- How much are taxes cut in the \$20,000 - \$30,000 income bracket?

Course Assessment


- ▶ Student Assessment:
 - HW, Quizzes, Class Investigations (50%)
 - Midterm Exam (20%)
 - Final Exam (20%)
 - Attendance & Participation (10%)
- ▶ Course Overall:
 - Student Pre/Post-Test (+3 gain; 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)



QRCW

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 mins. a day.
- 

QRCW

at

Central Washington University

- ▶ Introduction: 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”



QRCW at Central Washington University

- ▶ News of the Day (2 required per student)
 - Copy of article & source
 - Short oral summary of article which classifies the *type* of numerical information (factual, experiment, survey, etc.)
 - Brief description of numerical information and how it is used/presented
 - Focus on:
 - Comparisons (Identify and comment on appropriateness.)
 - Accuracy (Numbers seem reasonable? Is the math correct? Corroborate with another source?)
 - Graphs (Clearly labeled, easy to read? Support/strengthen article?)



Assessment

▶ Students:

- 4 quizzes (percent change, indices, compound interest, false positives) : 33%
- Homework: 42%
- NoD: 17%
- Attendance: 8%

▶ Course

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



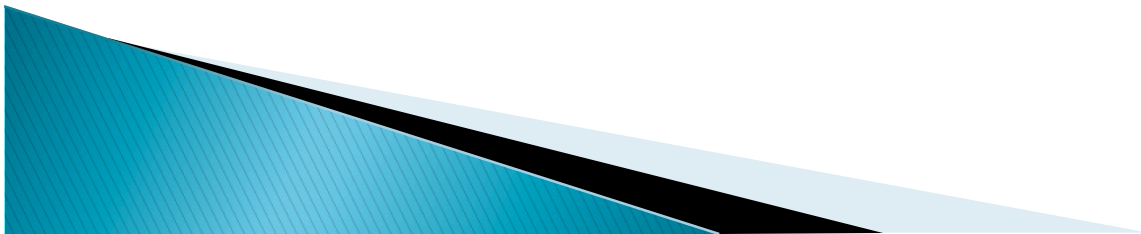
QRCW at Hollins University

- ▶ Course taught: Spring 2008 and Fall 2008
- ▶ Enrollment: Approx 20 students each time
- ▶ Two QR Requirements for Gen Ed (q & Q):
 - Satisfies our “q” requirement. Required for students who do not receive “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



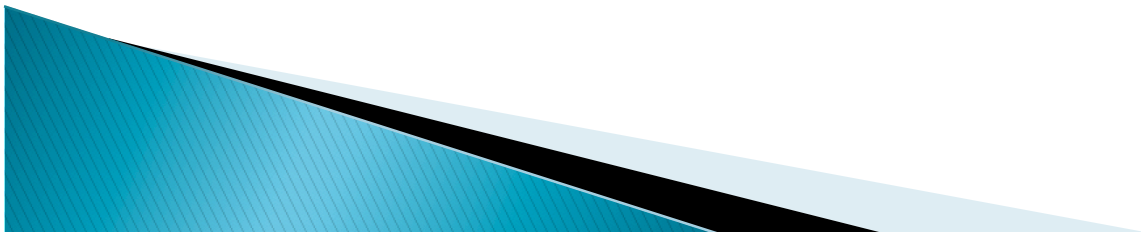
QRCW at Hollins University

- ▶ 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



QRCW at Hollins University

- ▶ Use of the Case Studies
 - One class session to discuss and critique a given case study/sometimes in class, sometimes in the lab with excel
 - Written assignment that allows students to find a recent article for comparison/personalize the information



Assessment

- ▶ Students (Total of 850 points)
 - “daily” homework (100 points)
 - Three in class tests (300 points)
 - Four excel labs (100 points)
 - Six “QR in the News” papers (100 points)*
 - Final Exam (150 points)
 - Attendance/Participation (100 points)
- ▶ Course
 - Spring 2008 Pre/post MC test (+1.5/??)
 - Written paragraph on “importance of QR”

*definitely the hardest (and most significant)
part of the course

