

5-16-11

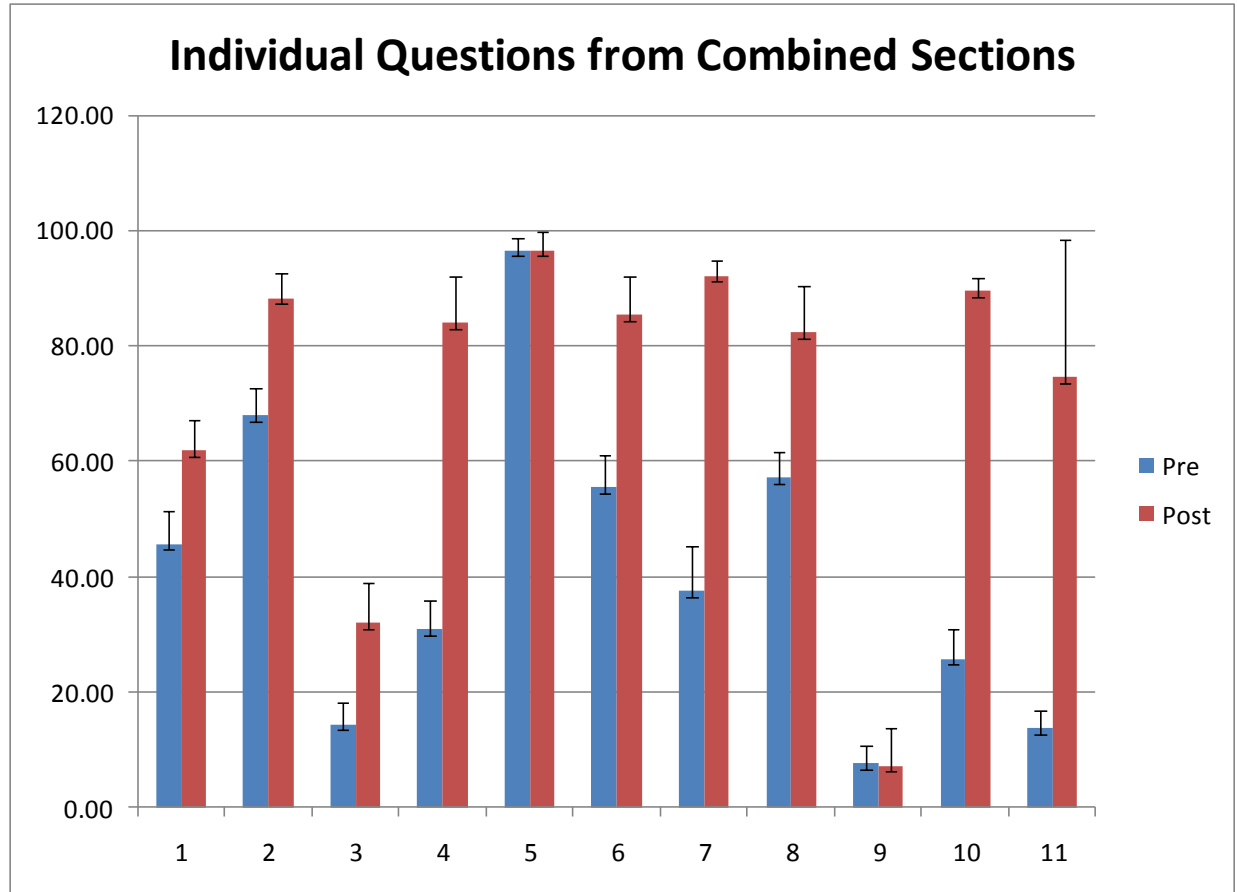
UNIVERSITY OF DAYTON DEPARTMENT OF BIOLOGY
ASSESSMENT PLAN AND REPORT

Pre- and Post-Test of BIO 151

Objectives:

- What level of understanding did students begin course with?
- What level of understanding did students leave course with?
- What was the impact of the course?
- Connect this assessment to program-level assessment.
- Help identify areas that need improvement.
- Provide benchmark data for long-term studies.
- Compare results from 2009 and 2010... Were there changes to either the incoming student population or with the impact of the course on student knowledge levels?
- What does the addition of two new questions to the 2010 survey add to our understanding of student background knowledge and the pedagogical approaches used in the classroom?
Did embedding the post-course questions in the final exam make a difference

Methodology: see above (p 5). A total of 11 questions covering a range of key concepts and information in the course were administered to students on the first day of the course to assess background knowledge. The same questions were embedded in the final exam without the student's knowledge. The graph below shows the aggregate data from all sections; % correct pre- and post-test.



What we learned:

- Students appeared to take the test seriously (high score on Q5, a question about the scientific method) but were stumped by the deeper questions.
 - This suggests the results are reliable across all questions and can help guide our work
- Surprised at how much they knew at start (especially: amino acid, scientific method).
 - We may need to spend less time on subjects students are already comfortable with.
- Pleased to see 151/151L did improve student knowledge.
- Improvement was not even across all topics:
 - Low performance: Cytoskeleton, cytochrome.
 - Low increase: Chemistry, cytoskeleton, cytochrome.
 - Most dramatic improvements came from learning the Hershey and Chase experiment (possibly a subject not covered in detail in high school).
- Students in 2010 demonstrated 3% lower background knowledge skills going into the class compared to 2009 students.
- Students in 2010 demonstrated an “equivalent” level of knowledge to the 2009 students at the end of the class, but there is an approximate 10% increase in the

- scores of the 2010 students – which is most likely caused by the positive effect of embedding the post-course questions into the final exam.
- The increase in scores in the Hershey and Chase experiment (question 11) were greatest in sections that used a designed in-class activity.
 - Results indicate we need to expand the use of in-class activities to deepen learning
 - Future surveys should use the format deployed in 2010... ungraded pre-course survey questions at the start of the course, and graded post-course questions embedded in the final exam.