



Innovative Teaching Strategies

Academic Excellence Workshop

Spring 2021

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Chancellor and Provost's Teaching Innovation Award

- Commitment to creativity and excellence in teaching
 - New ways to engage students in learning process
 - New approaches to student collaboration
 - New uses of instructional technology
- Criteria
 - Original
 - Facilitate critical thinking/encourage student collaboration
 - Mentorship, improvisation, motivational teaching strategy
 - **Creation or adaptation of new teaching material**
 - New pedagogy
 - **Demonstrate significant impact on teaching effectiveness, student learning & retention**
 - **Potential for widespread use across disciplines**
- 3 – 5 pages
- Letters from Chair & Dean
- Due March 19



Flipped Classroom Using Pre-recorded Video Lectures to Improve Student Learning Outcomes



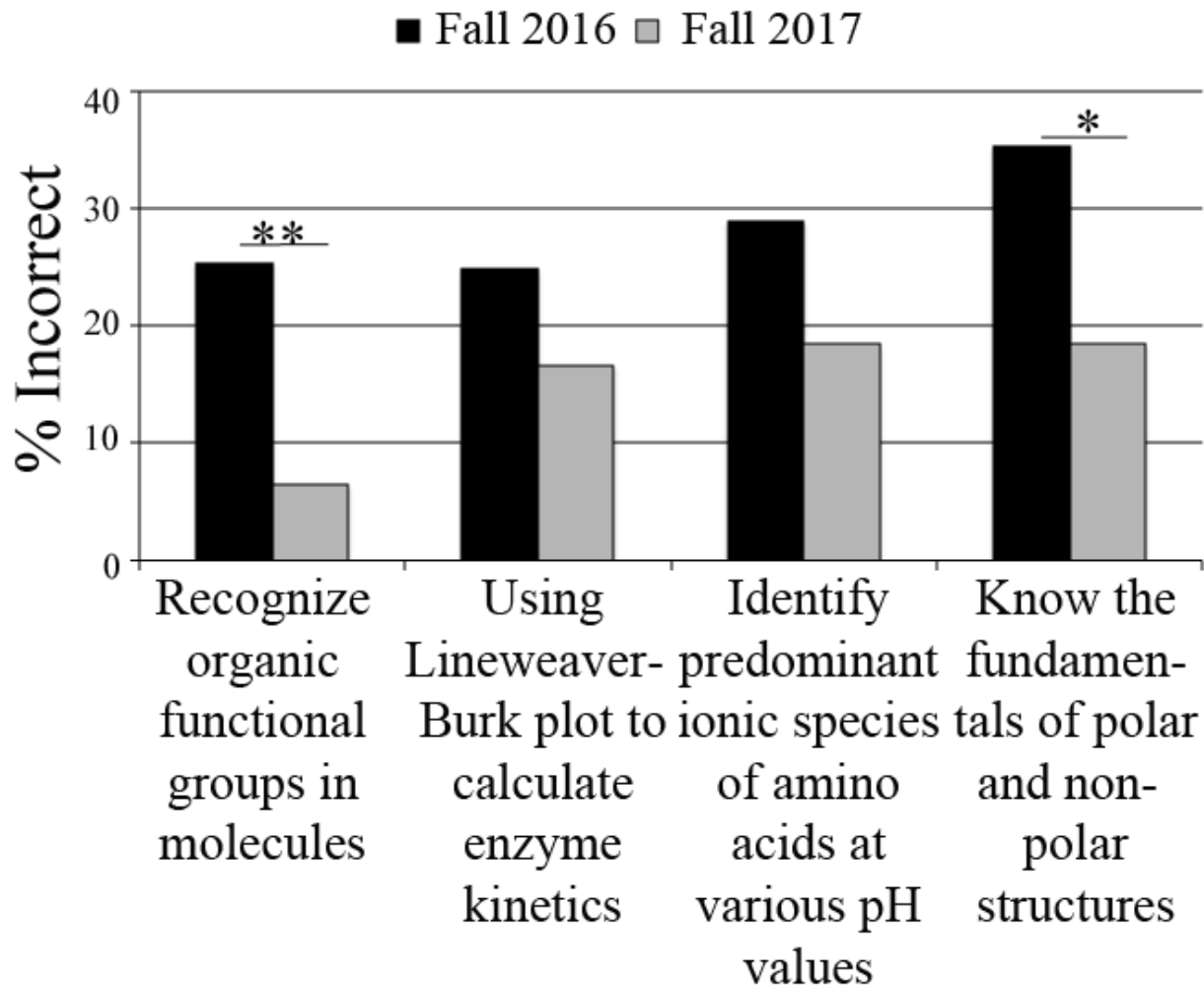
Rationale & Hypothesis

- Students use of audio recording devices
- Focus and attention span of 10 – 15 minutes
- Note taking ability
- PHA311 (Physiological Chemistry)
- Flipped classroom approach: Watch lectures before coming to class, utilize class time for practical applications, personalized learning
- **Hypothesis**: *Flipped classroom will lead to a better lecture experience; improvement in SLO and retention of information*



Results – Learning Outcomes

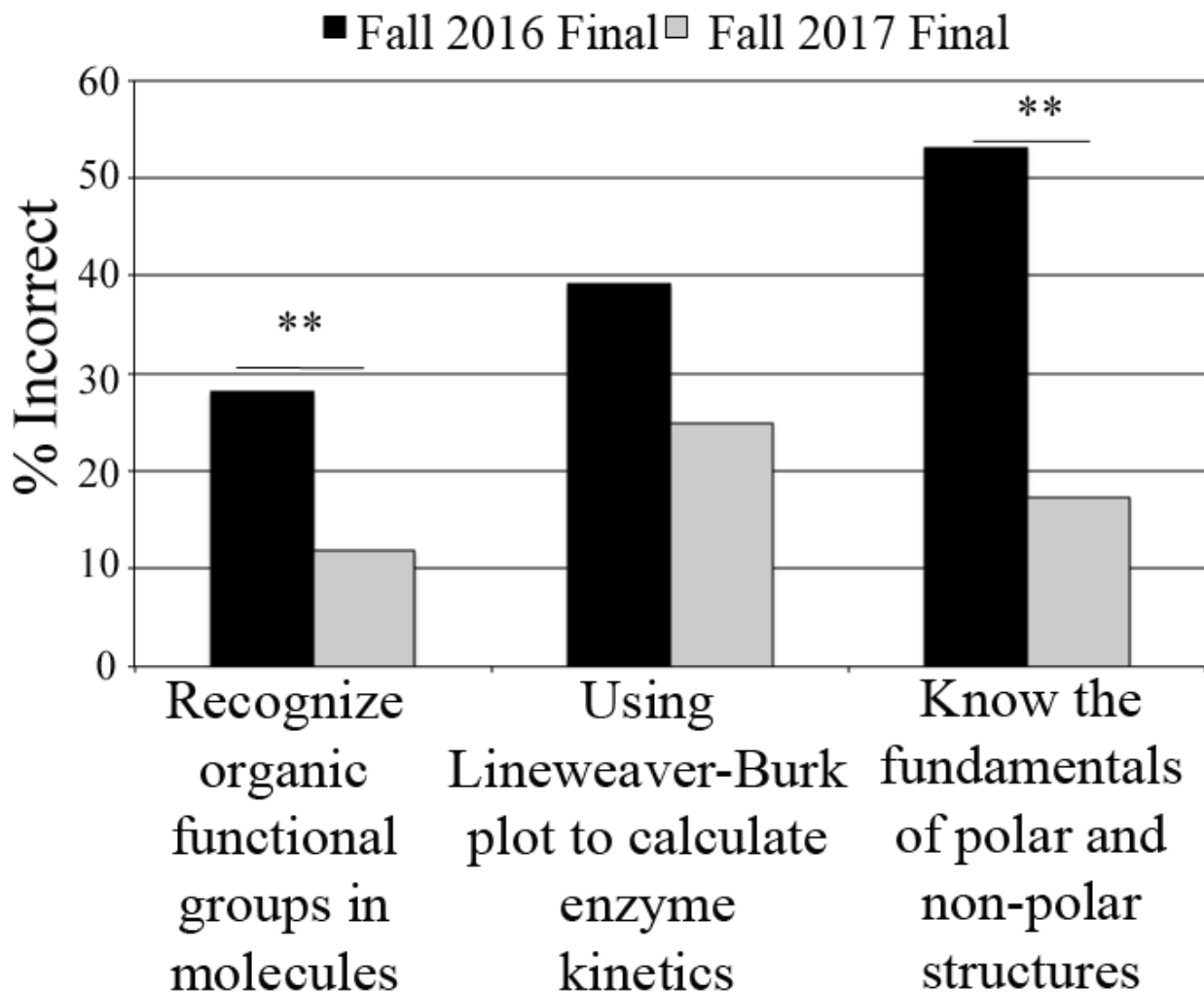
Improved Student Learning Outcomes





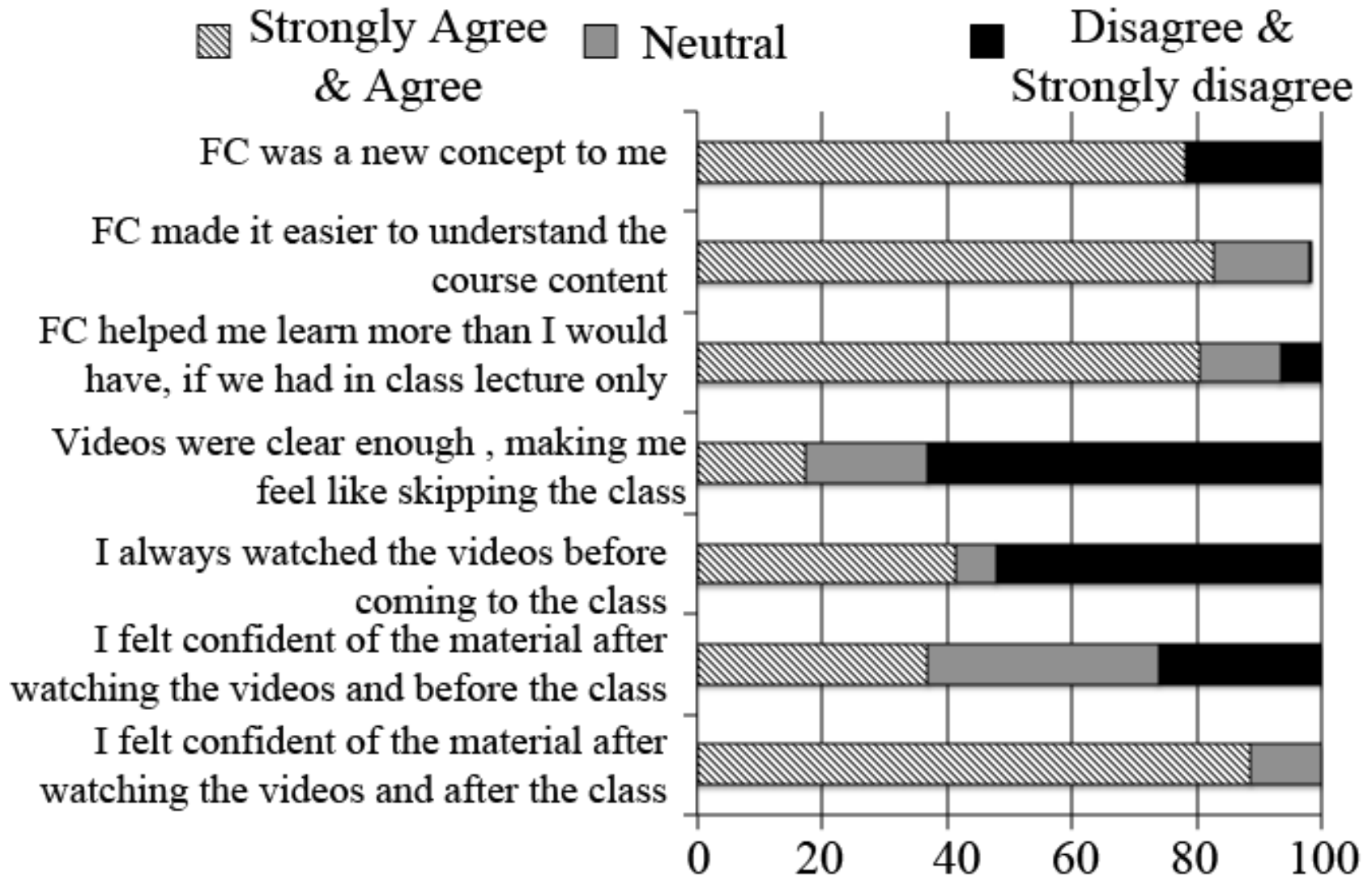
Results – Retention of Information

Improved Retention





Results – Student Perception





Advantages

- Pause/stop whenever felt like taking a break
- Take notes without feeling rushed
- Re-watch sections until the concept was understood
- Identifying slides where additional clarification was required

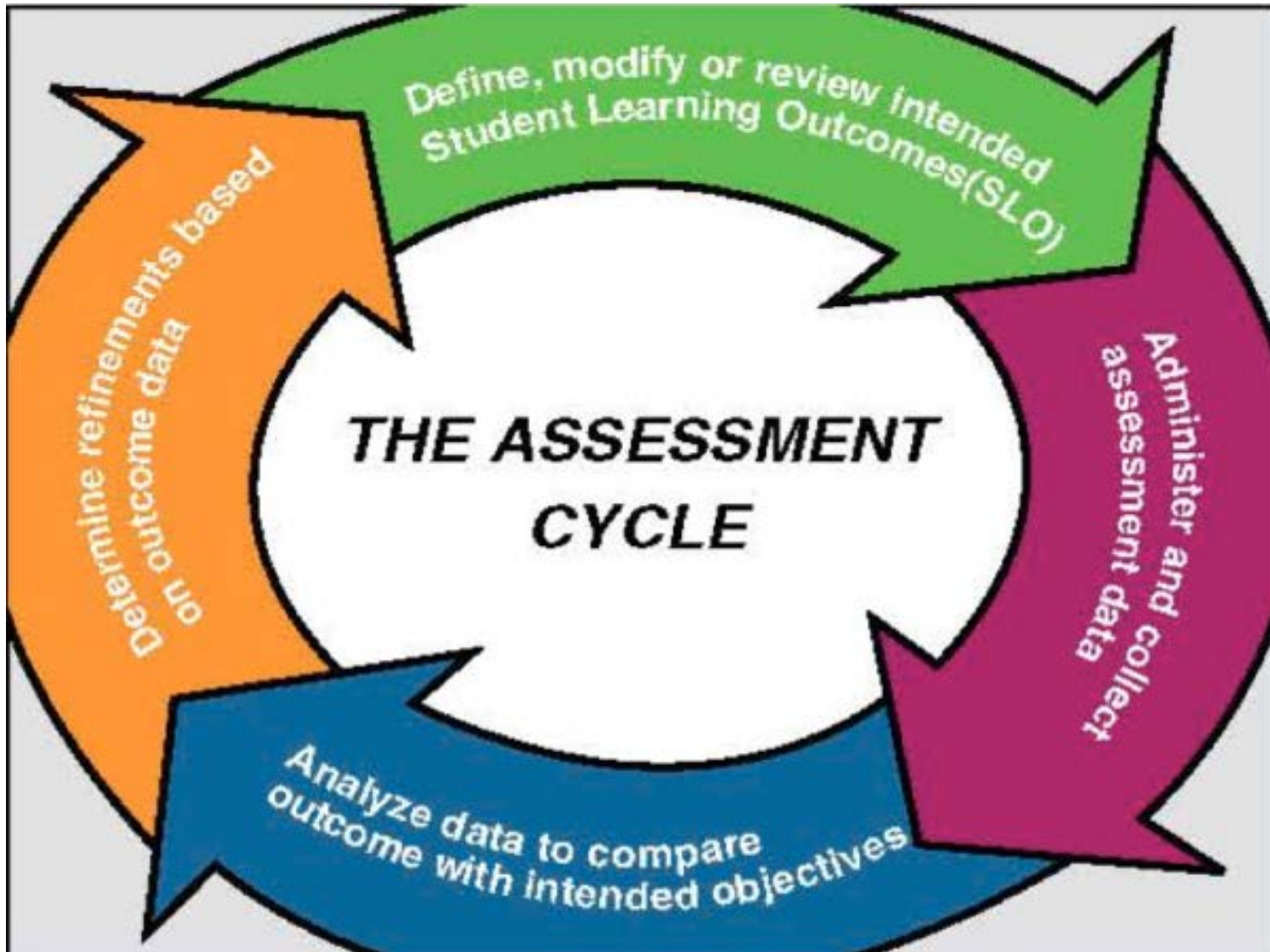


Disadvantages

- Having to watch videos in “their” time outside of classroom
- Not having animations
- Not getting a question answered right away
- Feeling lost in the classroom



Apperson DataLink Connect





Apperson DataLink Connect

- Learning Outcomes Editor
- Align test questions to Learning Outcomes
- Item Analysis
- Class Proficiency Report
 - Measures proficiency level of class on each SLO; improve curriculum and pedagogy
- Student Proficiency Report
 - Feedback for development and improvement



Class Proficiency Report

Class Proficiency Report			Exams Graded: 25
Instructor:	Total Possible: 50	Class Average: 39.2 - 78.5%	
Exam Name:	Highest Score: 49 - 98.0%	Class Median: 37.0 - 74.0%	
Exam Date: Saturday, October 27, 2007	Lowest Score: 29 - 58.0%	Proficiency: >= 80%	
Standard	Description	# Proficient	% Proficient
1. pH pKa concept			Proficiency: >= 80%
1.	pH pKa concept	7	<div><div></div></div> 28.0%
	Standards Rating	28.0%	<div><div></div></div> 28.0%
2. Naming Functional Groups			Proficiency: >= 80%
2.	Naming Functional Groups	21	<div><div></div></div> 84.0%
	Standards Rating	84.0%	<div><div></div></div> 84.0%
3. Amino Acids			Proficiency: >= 80%
3.	Amino Acids	12	<div><div></div></div> 48.0%
	Standards Rating	48.0%	<div><div></div></div> 48.0%
4. Protein Structure			Proficiency: >= 80%
4.	Protein Structure	15	<div><div></div></div> 60.0%
	Standards Rating	60.0%	<div><div></div></div> 60.0%
5. Nutrition			Proficiency: >= 80%
5.	Nutrition	13	<div><div></div></div> 52.0%
	Standards Rating	52.0%	<div><div></div></div> 52.0%
Overall Rating		54.4%	<div><div></div></div> 54.4%



Item Analysis

Exam Item Analysis Report

Exams Graded: 25

Instructor:
Exam Name:
Exam Date: Saturday, October 27, 2007

Total Possible: 50
Highest Score: 49 - 98.00%
Lowest Score: 29 - 58.00%

Class Average: 39.24 - 78.48%
Class Median: 37.0 - 74.00%
KR20: 0.792

Correct answers are shown in bold and italics					Blanks	Multiples	Point Biserial	Correct	Percent Incorrect
Q 28	A (0, 0.0%)	B (0, 0.0%)	<i>C (21, 84.0%)</i>	D (4, 16.0%)	E (0, 0.0%)		0.23	21, 84.0%	<div><div></div></div> 16.0%
Q 29	<i>A (20, 80.0%)</i>	B (5, 20.0%)	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.31	20, 80.0%	<div><div></div></div> 20.0%
Q 30	A (3, 12.0%)	<i>B (22, 88.0%)</i>	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.16	22, 88.0%	<div><div></div></div> 12.0%
Q 31	A (0, 0.0%)	<i>B (6, 24.0%)</i>	C (10, 40.0%)	D (9, 36.0%)	E (0, 0.0%)		0.50	6, 24.0%	<div><div></div></div> 76.0%
Q 32	A (0, 0.0%)	<i>B (18, 72.0%)</i>	C (4, 16.0%)	D (2, 8.0%)	E (0, 0.0%)	<input checked="" type="checkbox"/>	0.30	18, 72.0%	<div><div></div></div> 28.0%
Q 33	A (8, 32.0%)	<i>B (17, 68.0%)</i>	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.04	17, 68.0%	<div><div></div></div> 32.0%
Q 34	A (9, 36.0%)	<i>B (9, 36.0%)</i>	C (1, 4.0%)	D (6, 24.0%)	E (0, 0.0%)		0.06	9, 36.0%	<div><div></div></div> 64.0%
Q 35	A (3, 12.0%)	B (1, 4.0%)	<i>C (21, 84.0%)</i>	D (0, 0.0%)	E (0, 0.0%)		0.25	21, 84.0%	<div><div></div></div> 16.0%
Q 36	A (0, 0.0%)	B (0, 0.0%)	C (0, 0.0%)	D (0, 0.0%)	<i>E (25, 100.0%)</i>		0.00	25, 100.0%	<div><div></div></div> 0.0%
Q 37	A (0, 0.0%)	B (0, 0.0%)	<i>C (18, 72.0%)</i>	D (7, 28.0%)	E (0, 0.0%)		0.24	18, 72.0%	<div><div></div></div> 28.0%
Q 38	A (0, 0.0%)	B (0, 0.0%)	C (8, 32.0%)	<i>D (17, 68.0%)</i>	E (0, 0.0%)		0.32	17, 68.0%	<div><div></div></div> 32.0%
Q 39	<i>A (24, 96.0%)</i>	B (1, 4.0%)	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.01	24, 96.0%	<div><div></div></div> 4.0%
Q 40	A (1, 4.0%)	<i>B (24, 96.0%)</i>	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.01	24, 96.0%	<div><div></div></div> 4.0%
Q 41	<i>A (18, 72.0%)</i>	B (1, 4.0%)	C (2, 8.0%)	D (4, 16.0%)	E (0, 0.0%)		0.03	18, 72.0%	<div><div></div></div> 28.0%
Q 42	A (0, 0.0%)	B (9, 36.0%)	C (0, 0.0%)	<i>D (15, 60.0%)</i>	E (1, 4.0%)		0.43	15, 60.0%	<div><div></div></div> 40.0%
Q 43	A (0, 0.0%)	<i>B (25, 100.0%)</i>	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.00	25, 100.0%	<div><div></div></div> 0.0%
Q 44	A (2, 8.0%)	B (0, 0.0%)	C (2, 8.0%)	<i>D (21, 84.0%)</i>	E (0, 0.0%)		0.21	21, 84.0%	<div><div></div></div> 16.0%
Q 45	A (1, 4.0%)	<i>B (23, 92.0%)</i>	C (0, 0.0%)	D (1, 4.0%)	E (0, 0.0%)		0.15	23, 92.0%	<div><div></div></div> 8.0%
Q 46	<i>A (18, 72.0%)</i>	B (7, 28.0%)	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.25	18, 72.0%	<div><div></div></div> 28.0%
Q 47	A (6, 24.0%)	<i>B (19, 76.0%)</i>	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.54	19, 76.0%	<div><div></div></div> 24.0%
Q 48	A (6, 24.0%)	<i>B (19, 76.0%)</i>	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.17	19, 76.0%	<div><div></div></div> 24.0%
Q 49	<i>A (20, 80.0%)</i>	B (5, 20.0%)	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.43	20, 80.0%	<div><div></div></div> 20.0%
Q 50	A (1, 4.0%)	<i>B (24, 96.0%)</i>	C (0, 0.0%)	D (0, 0.0%)	E (0, 0.0%)		0.16	24, 96.0%	<div><div></div></div> 4.0%



Student Proficiency Report – 1

Student Proficiency Report

Instructor: [REDACTED] Total Possible: 50 Student Score: 34.0 - 68.0%
Exam Name: [REDACTED] Highest Score: 49 - 98.0% Class Average: 39.2 - 78.5%
Exam Date: Saturday, October 27, 2007 Lowest Score: 29 - 58.0% Proficiency: >= 80%

Standard	Description	Correct	Total	
1. pH pKa concept				Proficiency: >= 80%
1.	pH pKa concept	5	8	<div><div>62.5%</div></div>
Overall Proficiency		5	8	<div><div>62.5%</div></div>
2. Naming Functional Groups				Proficiency: >= 80%
2.	Naming Functional Groups	5	5	<div><div>100.0%</div></div>
Overall Proficiency		5	5	<div><div>100.0%</div></div>
3. Amino Acids				Proficiency: >= 80%
3.	Amino Acids	11	14	<div><div>78.6%</div></div>
Overall Proficiency		11	14	<div><div>78.6%</div></div>
4. Protein Structure				Proficiency: >= 80%
4.	Protein Structure	5	9	<div><div>55.6%</div></div>
Overall Proficiency		5	9	<div><div>55.6%</div></div>
5. Nutrition				Proficiency: >= 80%
5.	Nutrition	8	14	<div><div>57.1%</div></div>
Overall Proficiency		8	14	<div><div>57.1%</div></div>
Proficiency Level		34	50	<div><div>68.0%</div></div>



Student Proficiency Report – 2

Student Proficiency Report

Instructor: [REDACTED] Total Possible: 50 Student Score: 29.0 - 58.0%
Exam Name: [REDACTED] Highest Score: 49 - 98.0% Class Average: 39.2 - 78.5%
Exam Date: Saturday, October 27, 2007 Lowest Score: 29 - 58.0% Proficiency: $\geq 80\%$

Standard	Description	Correct	Total	
1. pH pKa concept				Proficiency: $\geq 80\%$
1.	pH pKa concept	1	8	<div><div></div>12.5%</div>
	Overall Proficiency	1	8	<div><div></div>12.5%</div>
2. Naming Functional Groups				Proficiency: $\geq 80\%$
2.	Naming Functional Groups	5	5	<div><div></div>100.0%</div>
	Overall Proficiency	5	5	<div><div></div>100.0%</div>
3. Amino Acids				Proficiency: $\geq 80\%$
3.	Amino Acids	12	14	<div><div></div>85.7%</div>
	Overall Proficiency	12	14	<div><div></div>85.7%</div>
4. Protein Structure				Proficiency: $\geq 80\%$
4.	Protein Structure	5	9	<div><div></div>55.6%</div>
	Overall Proficiency	5	9	<div><div></div>55.6%</div>
5. Nutrition				Proficiency: $\geq 80\%$
5.	Nutrition	6	14	<div><div></div>42.9%</div>
	Overall Proficiency	6	14	<div><div></div>42.9%</div>
	Proficiency Level	29	50	<div><div></div>58.0%</div>



Pharmacy Student Success Program



Collecting Test Data

1. Score the Exam
2. Review Item analysis
3. Determine a Cut-off (percent of students getting a question wrong)
4. Link questions to Lecture Objectives
5. Calculate the percentage of students missing a lecture objective



Review/Reinforce/Remediate

Instructor mediated



Collecting Re-Test Data

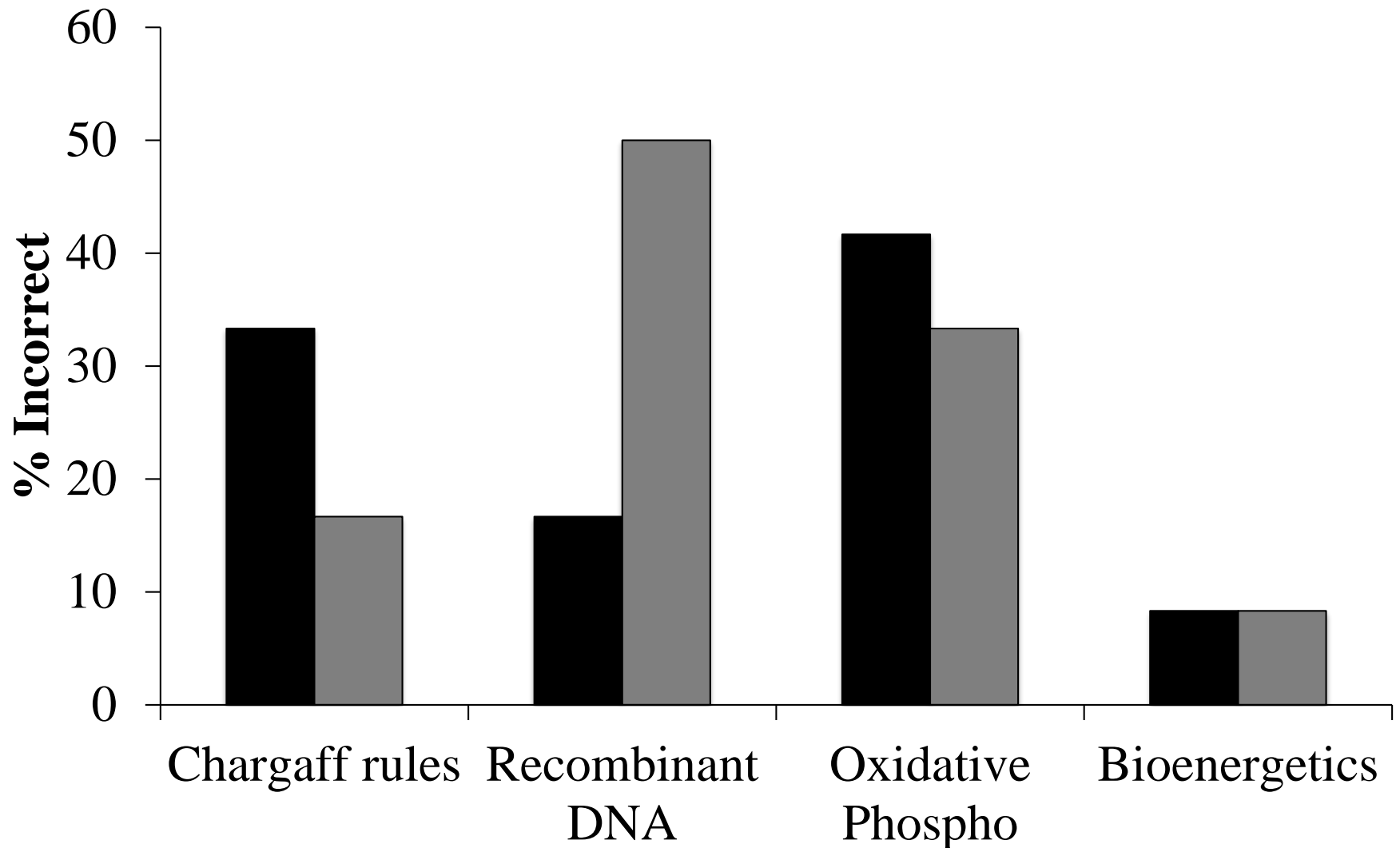
6. Re-test same objectives using new questions
7. Collect the data – repeat steps 1-5
8. Determine percent of students got the questions wrong
9. Record & report

*Can be used before final exam, formative
assessment before period exam*



PHA311 PSSP

■ Test ■ Re-Test





Acknowledgements

- Dr. Iyer, Dean, HUSOP
- Dr. Campbell, Assistant Dean of Student Affairs & Assessment
- HUSOP Faculty