

Experiences with Lab Notebooks
in Blackboard 9.1:
The Good, the Bad, and the Ugly



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BlackBoard 9.1

- ❖ Why?
 - ❖ Because it's what we have on campus
 - ❖ (So I'm *really* curious what others are using!)
- ❖ Has “group” capability and “group tools”
 - ❖ Use Wiki for lab notebook
 - ❖ BlackBoard also has Journals and Blogs...
 - ❖ But they lack tracking features of Wikis

The Good

Creates my lab groups

Groups

The **Groups** tool allows Instructors to organize Students into Groups of any size. Instructors can provide communication and collaboration tools that only Group members can access. Groups can be created one at a time or in sets. Groups can be designated as Self-Enroll, allowing students to add themselves to a Group, or Manual Enroll, having the Instructor assign students to a Group. [More Help](#)

Create Single Group

Create Group Set

Group Settings

| <input type="checkbox"/> | Name | GroupSet | Self-Enroll | Available |
|--------------------------|----------------------------|--------------------------|-------------|-----------|
| <input type="checkbox"/> | Interference/Diffraction 5 | Interference/Diffraction | No | Yes |
| <input type="checkbox"/> | Interference/Diffraction 6 | Interference/Diffraction | No | Yes |
| <input type="checkbox"/> | Interference/Diffraction 7 | Interference/Diffraction | No | Yes |
| <input type="checkbox"/> | Lenses and Mirrors 1 | Lenses and Mirrors | No | Yes |
| <input type="checkbox"/> | Lenses and Mirrors 2 | Lenses and Mirrors | No | Yes |
| <input type="checkbox"/> | Lenses and Mirrors 3 | Lenses and Mirrors | No | Yes |
| <input type="checkbox"/> | Lenses and Mirrors 4 | Lenses and Mirrors | No | Yes |
| <input type="checkbox"/> | Lenses and Mirrors 5 | Lenses and Mirrors | No | Yes |
| <input type="checkbox"/> | Lenses and Mirrors 6 | Lenses and Mirrors | No | Yes |
| <input type="checkbox"/> | Lenses and Mirrors 7 | Lenses and Mirrors | No | Yes |
| <input type="checkbox"/> | Reflection-Refraction 1 | Reflection-Refraction | No | Yes |
| <input type="checkbox"/> | Reflection-Refraction 2 | Reflection-Refraction | No | Yes |
| <input type="checkbox"/> | Reflection-Refraction 3 | Reflection-Refraction | No | Yes |
| <input type="checkbox"/> | Reflection-Refraction 4 | Reflection-Refraction | No | Yes |

Groups named after the lab;
One Blackboard group per lab group

Blackboard Learn

https://bblearn2.rowan.edu/webapps/portal/frameset.jsp?tab_tab_group_id=_2_1&url=%2Fwebapps%2Fblackbr

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My Blackboard Content Collection

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Tasks

Wikis

No grading

Grade : Points possible :

Show participants in "needs grading" status after every Page Saves

Add Rubric

| Name | Type | Date Last Edited | Show Rubric to Students |
|----------------------|------------------|--------------------------|-------------------------|
| Lab Journal Entry 2d | Used for Grading | Aug 13, 2013 10:53:18 AM | No |

Tools below are turned off for the course. They can still be turned on/off for the group but they will not be available until they are turned on for the course.

Commercial Content Tools

3. Module Personalization Setting

Allow individual group members to personalize group space modules

Allow Personalization

4. Membership

Automatic distribution applies only to students who are currently enrolled in the course. Additional students may be enrolled manually.

*** Determine Number of Groups by**

Number of Students per Group

Number of Groups

*** Determine How to Enroll any Remaining Members**

Distribute the remaining members amongst the groups

Put the remaining members in their own group

Manually add the remaining members to groups

5. Submit

I have been known to tweak groups manually...

Click Submit to proceed. Click Cancel to quit.

Cancel Submit

Each group wiki is graded

I use random enroll
3 students/group

I have been known to tweak groups manually...

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Can move students in/out of groups quickly. I make them the night before and have had to shuffle in class due to absences; really easy! Also tweaked if I know there are other "conflict issues" between students.

Assigns a rubric (that you create) to the Wiki

Rubric

Name Lab Journal Entry 2d

Description

Rubric Detail

| Criteria | Levels of Achievement | | | | |
|-------------------|--|--|-----------------------|------------------------------------|---------------|
| | Every element; superior quality | Every element minimally met | Some elements missing | More than half of elements missing | Not completed |
| Objective/Intro | 4 Points | 3 Points Entry is properly headed containing date and names of experimenters; objective is succinctly stated in your own words; may include some brief background notes—in your own words | 2 Points | 1 Points | 0 Points |
| Procedural Steps | 4 Points | 3 Points Tasks performed are well documented—complete, clear, yet succinct; any non-standard equipment used is briefly described; tools used to make measurements noted when they are used with expected uncertainties—not as an initial “ingredients list” | 2 Points | 1 Points | 0 Points |
| Observations/Data | 4 Points | 3 Points All observations, included pre-data-collection work, are noted along with any inferences made from those observations; measurements recorded as they are taken; all measurements have associated absolute uncertainty recorded (can be single statement for all similar measurements); summary table of data after all data collected as needed (may be in attached spreadsheet) | 2 Points | 1 Points | 0 Points |
| Results/Analysis | 4 Points | 3 Points Fundamental equations used noted; final form equations used noted; equations are formatted properly (no “fake math” notations); detailed computations are not cluttering up the entry; all (properly formatted) graphs are included as needed (may be in attached spreadsheet); final numbers with associated relative precision error and relative accuracy error are clearly noted; notes on how final number(s) and uncertainties were derived are included | 2 Points | 1 Points | 0 Points |
| Conclusions | 4 Points More advanced: Discussion will logically describe how the error sources affect the final numbers | 3 Points Descriptive analysis comparing relative precision error and relative accuracy error; possible major sources of systematic error noted as needed (may not invoke “human error”); discussion of whether objective was met (if not, why not); end-of-lab questions are addressed in a prose analysis (not a Q&A) | 2 Points | 1 Points | 0 Points |
| Overall | 4 Points More advanced: Could someone else, who took this course last year, write up a formal report on your experiment from just your notes? | 3 Points Did everyone sign off? Could you realistically write up a formal report from your notes? | 2 Points | 1 Points | 0 Points |

If everything is just “OK” 18/24 (C+/B-)

[View Associated Items](#)


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Of course, I can always normalize course grades at the end of the semester if I feel my overall scoring has been too harsh

Blackboard Learn Standing Waves 2

https://bblearn2.rowan.edu/webapps/Bb-wiki-BBLEARN/wikiView?course_id=_10130_1&wiki_id=_7036_1

Control Panel



To get a new number of waves we adjusted the weight hanging on the end. We found another standing wave pattern with 2 waves on the string with a mass of 66 g total or 61 g added to the hanger. The wavelength was 0.67m. We got one and a half standing waves with 125 g of mass hanging on the end. The wavelength was calculated to be .8933m. Another standing wave was found with 325 g hanging. With one full wave pattern on the string the wavelength was the same length as the string 1.34m. We had to increase the amplitude in order to see the wave for this one.

When we decided to use less mass to find more standing wave patterns we accidentally got another 2 wave long pattern with 67 g hanging and it was much more stable than what we got with 66g hanging. We got a 5 half wave long standing wave pattern with 43 g hanging. The wavelength was .536m. With a bit of help from another group we found a 7 half wavelength standing wave pattern with 21 g hanging on the end. We found the wavelength to be about .3829m. We found the 6 half wavelength pattern with 29 g hanging. We calculated the wavelength to be 0.4467m. We a found a finicky 9 half wavelength standing wave with 12 g hanging on the end. The wavelength was found to be 0.2978m.

Our data was put into the attached [Excell Spreadsheet](#).

Error Analysis

In order to calculate our error we used the formulas given.

We first tested out error using out normal RPE and RAE formulas.

$$RPE = \frac{\sigma_m}{m} \times 100\%$$

$$RAE = \frac{\sigma_b}{b} \times 100\%$$

When we plugged our numbers in from our linest chart into this equation we calucuted:

RPE = 1.912% and RAE= 21.06%

Next, We calculated our RPE and RAE using the new equations we were given for this experiment.

$$RPE = n \sigma_m = \frac{|m - m_{theoretical}|}{\sigma_m}$$

, where mtheoretical was calculated by solving for c in the equation

$$\lambda = c\sqrt{M} \text{ and } c = \frac{1}{f} \sqrt{\frac{g}{\mu}}$$

we found c=2.677

$$RAE = n \sigma_b = \frac{|b - b_{theoretical}|}{\sigma_b}$$

, where btheoretical = 0

Once again we used the information from our linest chart to calculate our RPE and RAE we found them to be,

RPE = 8.664 and RAE = 4.745

Since our RAE < RPE that means YAY! we did good!

Conclusion

Overall, we think we were successful in the completion of this lab. We were able to find several standing waves on a string with two through nine half wavelengths. Being able to find a variety of different standing waves gave us alot of different data to enter into our chart. This gave us a better best fit line because there were more points for it to be based off of. In the end our RAE < RPE which means we did good. It meanswe did well with both our precision and accuracy.

Modern editor
that allows
word
formatting,
super- and
subscripting,
equations,
inline special
characters,
image import,
file attachment

Not that all students
make use of it fully...

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I look at each entry as they are working to point out how to get equations and characters

Blackboard Learn Participation Summary

https://bblearn2.rowan.edu/webapps/Bb-wiki-BBLEARN/participationSummary?course_id=_10130_1&wiki_id=...

201420-PHYS00221 - INTRO THRM DYNM/FLU /WVS/OPTICS (Section 1)

Home Page Information Discussions Handouts Groups Lab Wikis Sites and Docs Assessments e-mail

Rowan Library Help Calendar

COURSE MANAGEMENT Control Panel

Participation Summary

Each user's contributions to the Wiki are represented by **Words Modified** and **Page Saves**. If the Wiki is gradable, the participant can be graded by clicking his or her name. [More Help](#)

| Name | Words Modified (Number Count) | Words Modified (Percentage) | Page Saves (Number Count) | Page Saves (Percentage) |
|------------|-------------------------------|-----------------------------|---------------------------|-------------------------|
| [Redacted] | 687 | 58% | 8 | 72% |
| [Redacted] | 492 | 41% | 3 | 27% |

Displaying 1 to 2 of 2 items Show All Edit Paging...

Wiki Details

3/24/14 9:45 AM Grade **16/24**

16/24

16/24

GRADE BY RUBRIC

LAB JOURNAL ENTRY 2D Used for Grading

FEEDBACK - SHOWN TO LEARNER

A Character count: 0

Add Notes

Submit

OK

Can track the number of saves and relative participation by student

Although, in class, one group member must be "recorder"...

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...so this means one can't really use these values as a measure of actual contribution. Plus, those who are not doing the recording are the ones getting the data. There has been some discontent voiced by "recorders" who feel disconnected from the experiment so in future I'll be encouraging trading off the duties, but without changing whose logged in.

Participant's Contribution:

All pages and versions that you have modified are listed. To see your specific changes, choose to compare versions under *User's Modifications*, if available. Click a link in the *Page Version* column to view the version without annotated changes. [More Help](#)

| Page Version | User's Modifications | Created On | Words Modified |
|--------------------------------|--------------------------------------|------------------|----------------|
| [Redacted] (8) | Compare to Version 7 | 3/27/14 12:43 AM | 54 |
| [Redacted] (7) | Compare to Version 6 | 3/27/14 12:37 AM | 17 |
| [Redacted] (6) | Compare to Version 5 | 3/27/14 12:34 AM | 127 |
| [Redacted] (5) | Compare to Version 4 | 3/27/14 12:26 AM | 241 |
| [Redacted] (4) | Compare to Version 3 | 3/26/14 11:41 PM | 14 |
| [Redacted] (3) | Compare to Version 2 | 3/24/14 1:27 PM | 40 |
| [Redacted] (2) | Compare to Version 1 | 3/24/14 12:53 PM | 121 |
| [Redacted] (1) | | 3/24/14 12:37 PM | 73 |

Displaying 1 to 8 of 8 items [Show All](#) [Edit Paging...](#)

Wiki Details

3/24/14 9:45 AM Grade **16 / 24**

[\[Redacted\]](#) **16 / 24**

[\[Redacted\]](#) **16 / 24**

GRADE BY RUBRIC

LAB JOURNAL ENTRY 2D Used for Grading

FEEDBACK - SHOWN TO LEARNER

Character count: 0

[Add Notes](#) **Submit**

PARTICIPATION SUMMARY

Modified By: [\[Redacted\]](#)

Words Modified: 687 (58%)

Total Page Saves: 8 (72%)

Click here!

Can see all their saves; when, how much changed

cf to previously saved version

Can see how much was done in and after class!

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I tell them, since it's a notebook, 90% of it should be done before they leave class; need to be more intentional about checking that before letting students go

The screenshot shows a Blackboard Learn interface with a browser window displaying a rubric. The URL is <https://bblearn2.rowan.edu/webapps/blackboard/execute/gradeRubric?mode=grid&isPopup=true&rubricCount>. The page is titled "Rubric Detail" and shows a grid of criteria and scores for a student's work. The criteria are: "Results/Analysis", "Conclusions", and "Overall". The scores are: 4 (16.67%), 3 (12.5%), 2 (8.33%), 1 (4.17%), and 0 (0%).

| Criteria | Points | Percentage |
|------------------|--------|------------|
| Results/Analysis | 4 | 16.67% |
| Conclusions | 4 | 16.67% |
| Overall | 4 | 16.67% |

Raw Total: 23.00 (of 24.0)
 Change the number of points out of 24.0 to:

Feedback:
 T T T Paragraph Arial 4 (14pt)
 f_x " @ : HTML CSS

Grading with rubric is a snap!

In their grade book view students can click score and follow links to see all comments

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Rubric also prevents me from my bad habit of using .5 marks; must score in integers or make a wider ranged rubric.

The Bad

Blackboard Learn

https://bblearn2.rowan.edu/webapps/portal/frameset.jsp?tab_tab_group_id=_2_1&url=%2Fwebapps%2Fblackbr

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My Blackboard Content Collection

(Course has been unavailable to students since Wednesday, July 9, 2014) Grade Center

Edit Mode is: ON

Grade Center : Full Grade Center

When screen reader mode is on the table is static, and grades may be entered on the Grade Details page, accessed by selecting the table cell for the grade. When screen reader mode is off, grades can be typed directly into the cells on the Grade Center page. To enter a grade: click the cell, type the grade value, and press the Enter key to submit. Use the arrow keys or the tab key to navigate through the Grade Center. [More Help](#)

Create Column Create Calculated Column

Filter Discover Content Work Offline

Sort Columns By: Layout Position Order: Ascending

Last Saved: May 20, 2014 12:02 PM

| Last Name | First Name | Standing Waves | Standing Waves | Standing Waves | Standing Waves | Standing Waves | Standing Waves | Standing Waves |
|-----------|------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | | | | | | | |
| | | | | | 16.00 | | | |
| | | | 17.00 | | | | | |
| | | | | | | | | 18.00 |
| | | | 17.00 | | | | | |
| | | | | | 18.00 | | | |
| | | | | | 18.00 | | | |
| | | 12.00 | | | | | | |
| | | 12.00 | | | | | | |
| | | 12.00 | | | | | | |
| | | | | | | | | 18.00 |
| | | | | | | 18.00 | | |
| | | | | | 16.00 | | | |
| | | | | | | | 23.00 | |
| | | | | | | | 23.00 | |
| | | | | | | | 23.00 | |
| | | | | | 18.00 | | | |

Selected Rows: 0

Move To Top Email

Icon Legend

Edit Rows Displayed

Stupid grade book set up!

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With 10 labs/semester, 7 groups per lab, grade book will have 70, very sparsely populated, grade columns, but...

Blackboard Learn

https://bblearn2.rowan.edu/webapps/portal/frameset.jsp?tab_tab_group_id=_2_1&url=%2Fwebapps%2Fblackbr

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Create Column Create Calculated Column

Discover Content Work Offline

Layout Position Order: Ascending

Last Saved: May 20, 2014 12:02 PM

| Last Name | First Name | Ideal Gas Law La | ALG Exercise | Standing Waves | Speed of Sound | Reflection/Refra | Lenses and Mirr | Interference Diff |
|------------|------------|------------------|--------------|----------------|----------------|------------------|-----------------|-------------------|
| [Redacted] | [Redacted] | 15.00 | 18.00 | -- | -- | 14.00 | 14.00 | 14.00 |
| [Redacted] | [Redacted] | 15.00 | 18.00 | 16.00 | 15.00 | 12.00 | 8.00 | -- |
| [Redacted] | [Redacted] | 16.00 | 23.00 | 17.00 | 12.00 | 15.00 | 8.00 | -- |
| [Redacted] | [Redacted] | 16.00 | 15.50 | 18.00 | 22.00 | 12.00 | 8.00 | 11.00 |
| [Redacted] | [Redacted] | 14.00 | 17.00 | 17.00 | 19.00 | 12.00 | 13.00 | -- |
| [Redacted] | [Redacted] | 24.00 | 23.00 | 18.00 | 22.00 | -- | 11.00 | 11.00 |
| [Redacted] | [Redacted] | 21.00 | 23.00 | 18.00 | 22.00 | 12.00 | 18.00 | 8.00 |
| [Redacted] | [Redacted] | 15.00 | 17.00 | 12.00 | 13.00 | 17.00 | 11.00 | 18.00 |
| [Redacted] | [Redacted] | 11.00 | 23.00 | 12.00 | 10.00 | 12.00 | 14.00 | 8.00 |
| [Redacted] | [Redacted] | 14.00 | 15.50 | 12.00 | 13.00 | 21.00 | 13.00 | 14.00 |
| [Redacted] | [Redacted] | 21.00 | -- | 18.00 | 10.00 | 14.00 | 13.00 | 11.00 |
| [Redacted] | [Redacted] | 21.00 | 23.00 | 18.00 | 12.00 | 21.00 | -- | 14.00 |
| [Redacted] | [Redacted] | 16.00 | 18.00 | 16.00 | 15.00 | 14.00 | 13.00 | 12.00 |
| [Redacted] | [Redacted] | 14.00 | 23.00 | 23.00 | 12.00 | 15.00 | 11.00 | 8.00 |
| [Redacted] | [Redacted] | 24.00 | 15.50 | 23.00 | 22.00 | 21.00 | 18.00 | 12.00 |
| [Redacted] | [Redacted] | 20.00 | -- | -- | -- | -- | -- | 17.00 |
| [Redacted] | [Redacted] | 11.00 | -- | -- | -- | -- | -- | 12.00 |

Selected Rows: 0

Icon Legend Edit Rows Displayed

Can make a "total" column for each lab

But these scores don't link to score sheet for students

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And once you have the totals, can hide the 70 other columns.
 But really, you can't...
 And if you use these for automatic grade creation, the max score is 7*24! Still trying to figure that one out; they really need a "max" or "boolean or" or a total that doesn't total the max...

The Ugly

- ❖ Pulls one student out of experiment to be recorder
- ❖ Encourage rotating that during lab?
- ❖ While students can click scores for comments
 - ❖ The don't... Keep seeing same issues
 - ❖ Or they don't know they can that?
- ❖ Are in “report” mode, not “notebook” mode
 - ❖ Because they are typing it up?
- ❖ Tendency to skip taking procedural notes and focus only on getting all the data
 - ❖ “Will fill that in later”

- ❖ Only have one notebook per group
- ❖ Less to grade!
- ❖ Student stress: grade depends on recorder doing good job so not graded on just “their work”
- ❖ Have approval “check points” by me/group?
- ❖ Individual objective/results submissions?
- ❖ Slower for students
 - ❖ Want to “take notes” on paper, then “write it up nicely on the Wiki”—i.e. not getting the concept
 - ❖ Text entry, with formatting, slower than pen/paper

- ❖ Technology not always reliable
 - ❖ Had campus-wide network outage
 - ❖ Had BlackBoard server go down
- ❖ Need to remind students of “Gamer’s Mantra”:
Save early, save often!
- ❖ Some student’s don’t like the interface
 - ❖ Let them use word processor for notes
 - ❖ But must cut/paste into Wiki before leaving!
- ❖ If data/calculations done in spreadsheet, I have to download and reference; can’t comment and they usually don’t header/annotate well

Overall Assessment

- ❖ The Good outweighs The Bad
- ❖ The Ugly can mostly be mitigated with a bit of work and monitoring
- ❖ Keep using, keep trying to improve
 - ❖ Will provide feedback to BlackBoard