Appendix A – How to create a data-sharing lab

Creating a lab involves completing five major steps: creating lists, then graphs, then the page for lab instructions, then adding forms to the lab instructions, and then setting up the automatic e-mail.

1 – Create Data Submission Lists

1. Navigate to the Data Collection tab in the Physics department's SharePoint site
   (https://student.SharePoint.wpi.edu/courses/physicslabs/datacollection/default.aspx)

2. Click the "Site Actions" menu in the top right corner of the page.
   A menu will drop down.
   Click "Create."

3. A page will open describing the different types of content to create.
   Select "Custom List" at the top of the fourth column to the right.

4. This new page contains the form for entering the initial custom list information.
   Fill out the information:

   a. In the "Title" field, enter the course number, followed by the lab title, followed by the submission title.

      Example
      PH1121 – Determining Resistance – Part 1

   b. Select "No" in the field titled "Display this list on the Quick Launch?"

   c. Click the "Create" button at the bottom of the form

5. The default view for the custom list will open. At the top of the list are three button menus: New, Actions, and Settings.
   Click the "Settings" menu, and then, in the menu that drops, click "List Settings."

6. The list settings view opens. From this page, two properties need to be changed: the permissions, so that the students cannot see each other's data, and the required columns, so that when the forms are combined into one page they can be submitted sequentially.

   a. Setting the permissions
      i. Click "Advanced Settings" under the "General Settings" column.
      ii. A page opens containing advanced settings.
      Under "Read access:" select "Only their own."

Under “Edit access:” select “None.”
Under “Attachments” select “Disabled.”
Click “OK.”

iii. A message box opens warning that you will delete all attachments on the current list. You do not care.
Click “OK.”

b. Disable required columns
    i. Under the “Columns” section, click the “Title” row.
    ii. A page opens containing the column settings for the “Title” column.
    Under “Require that this column contains information:” click “No.”
    iii. Click “OK.”

7. At the top of the page, click the title of the custom list. This will navigate back to the default view of the list. All that is list is to add all the necessary columns to the list.

    a. Click the “Settings” menu again, but now click “Create Column” in the menu that drops down.

    b. A new page opens containing the initial column settings for the new column.
    Under “Title” type “Station Number.”
    Under “The type of information in this column is:” select “Lookup (information already on this site)”
    Under “Get information from:” select “Station Numbers – OH###.” (### is the room number of the lab)
    Click “Create.”

8. Repeat step seven for every column of data required for the first part.

9. Repeat up to step 7 for the final e-mail list. This list will perform the task of collecting lab-specific submission information and will provide an event to which the automated e-mail Workflow can attach.
Create the columns: Term, Section, and E-Mail To.

2 – Create Data Graphs

1. At the top right corner of the list is a menu titled “View: All Items.”
Click this menu, and then select “Create View.”

2. A page opens describing the types of views to create.
Click “Access View.”

3. Microsoft Office Access opens with a save dialog.
   Under the "File name:" field, delete the text "Views for" at the beginning of the file name

   Example
   PH1121 – Determining Resistance – Part 1.accdb

   Click "Save."
   SharePoint will ask you to Login. You don't care to login, as it will default to the currently logged in Windows user, so click "Cancel."

4. A new dialog will open allowing you to select a type of view.
   Select the "PivotChart" type.
   Click "OK."

5. On the right side of the new PivotChart is a list of fields.
   Drag the "Section Number" field into the box labeled "Drop Category Fields Here" at the bottom of the page.
   Drag relevant data fields into the box labeled "Drop Data Fields Here" above the graph.
   Save.
   i. Click the text labeled "Axis Title" on the left side of the graph.
   ii. Click the "Design" tab at the top of Access.
   iii. Click the "Property Sheet" button on the top right side of the toolbar. A dialog opens.
   iv. Click the "Format" tab in this dialog.
   v. Enter the vertical axis title in the "Caption" field.
      Press "Enter."
   vi. Click the horizontal "Axis Title" text on the graph.
   vii. Enter the horizontal axis title in the "Caption" field.
      Press "Enter."
   viii. Click "Publish to SharePoint" above the top of the graph.
      Select a relevant folder for the view to be saved.
      Click "Publish."
   ix. Accept all resulting dialogs.

   Close Microsoft Access.

3 – Create the Web Part Page

1. Click the "Site Actions" menu in the top right corner of the page.
   A menu will drop down.
   Click "Create."

2. A page will open describing the different types of content to create.
   Select “Web Part Page” in the farthest column to the right.

3. A new page opens containing the initial Web Part Page information.
   Type the lab name in the “Name:” field.
   Select “Full Page, Vertical” under the “Choose a Layout Template:” field.
   Click “Create.”

4. Copy the entire URL from the navigation bar at the top of Internet Explorer.

5. In Windows, click the “Start” button.

6. Type “SharePoint” in the “Start Search” box.
   Select “Microsoft Office SharePoint Designer 2007” under the “Programs” section of the “Start” menu.

7. SharePoint Designer will open.

   a. It will ask you to login.
      Click “Cancel.”

   b. Open the “File” menu and click “Open Site…”

   c. A dialog opens.
      Paste copied URL from step 3.4 into the “Site name:” field.
      Remove the filename from the URL.

      Example
      https://student.SharePoint.wpi.edu/courses/physicslabs/datacollection/Data_Documents/

      Click “Open.”

   d. The site opens. On the left is a file browser toolbox. In the middle is the content view.

   e. In the file browser, navigate to the Web Part Page created in step 3.2 and double click it.
      The Web Part Page will open in the content view.

      Do not close SharePoint Designer.

4 – Add Data Submission forms to Web Part Page

This section assumes that you are working in SharePoint Designer and are viewing the Web Part Page for the current lab. If you are adding forms to an already existing Web Part Page rather than performing this step immediately after Part 3, then navigate to the Web Part Page in a web browser, and then complete steps 3.4 – 3.7.

1. Click the “Click to insert a Web Part” text in the middle of the page.

2. Open the “Insert” menu, then the “SharePoint Controls” menu, and then click the “Custom List Form…” option.

3. A dialog opens.
   Under “List or document library to use for this form:” select the data submission list created for the first part of the lab.
   Uncheck “Show standard toolbar.”
   Click “OK.”

4. The custom list form for the first data submission opens.
   Remove the unnecessary buttons.

    a. Click the “OK” button at the top of the form.
       Press the “Delete” key.

    b. Repeat for both “Cancel” buttons on the form.

5. Click the title of the data submission form. It should select the form (a gray box covers the form and a small tab appears at the top).
   Press the right arrow key on the keyboard.

6. Repeat steps 2 through 5 for each part of the lab, and lastly for the e-mail form.

7. Save the document.

8. Return to the browser.
   Press “F5” to refresh the page.

9. The data forms should appear on the page. At the top of them a wide orange button titled “Add a Web Part” appears.
   Click “Add a Web Part.”

10. The “Add a Web Part” dialog appears.
    Scroll down to the “Miscellaneous” section and check the “Content Editor Web Part” item.

Click “Add.”

11. The “Content Editor Web Part” is created at the top of the page. Inside of it is text explaining how to change its content.
Click the highlighted text: “open the tool pane.”

12. The tool pane opens on the right side of the document.
Click the “Rich Text Editor…” button.

13. A content editor dialog appears.
Type the lab instructions into the content of the dialog.
Click “OK.”
At the bottom of the tool pane, click “OK.”

5 – Create Workflow to Send E-Mail

1. In SharePoint Designer, open the “File” menu and click “New.”

2. The “New” dialog opens.
Select the “SharePoint Content” tab.
Select the “Workflow” item in the left column.
Select “Blank Workflow” in the center column.
Click “OK.”

3. The “Workflow Designer” dialog opens.
Type an appropriate name for the Workflow Designer, such as the course number and lab title.

   Example
   PH1121 – Determining Resistance

   Uncheck “Allow this workflow to be manually started from an item.”
   Check “Automatically start this workflow when a new item is created.”
   Click the “Next” button at the bottom of the dialog.

4. The Workflow setup step appears.
In the “Specify details for ‘Step 1’” section, click the “Actions ↓” button.
In the dropdown menu, click “More Actions…”

5. The Workflow Actions dialog appears.
Select “Build Dynamic String” from the select box in the middle of the dialog.
Click “Add.”

6. Some text appears next to the “Actions ↓” button.
   Click the highlighted text, “dynamic string.”

7. The “String Builder” dialog opens. Inside of this dialog you will create the body of the e-mail sent to students.
   Type the title of the document.

8. Add the lab-specific fields:

   a. Press the “enter” key and then type “Term: ”.

   b. Press the “Add Lookup” button in the bottom left corner of the “String Builder” dialog.

   c. In the “Field:” dropdown, select the “Term” item.

   d. Click “OK.”

   e. Repeat steps 8.a – 8.d for the “Section” and “E-Mail To” fields.

9. Add the data fields:

   a. Type the first data column title followed by a “:”.

   b. Click the “Add Lookup” button in the bottom left corner of the “String Builder” dialog.

   c. In the “Source:” dropdown, select the list from which to retrieve the first data column value.

   d. In the “Field:” dropdown in the “Lookup Details” section, select the column from which to pull the value.

   e. In the “Field:” dropdown in the “Find the List Item” section, select the “… - Created By” item.

   f. Next to the “Value:” field, click the “…” button.

   g. The “Select Users” dialog appears.
      In the “Or select from existing Users and Groups:” field, select “User who created the current item.”
      Click the “Add >>” button.
      Click “OK.”
      Click “OK.”

Click “Yes,” because you understand that it will pull data from the first matched item in the selected list.

h. Repeat steps 9.a – 9.g for each data value measured by the student.

i. Click “OK” to exit the “String Builder” dialog.

10. Create the “body” variable:

    a. Click the text “Variable: variable.”

    b. Click “create a new variable…” in the menu that appears.

    c. Type “body” in the “Name:” field.

    d. Click “OK.”

11. Create the e-mail to list:

    a. Click the “Actions ↓” button.

    b. Click “Build Dynamic String” in the menu that appears.

    c. Click “dynamic string” in the text that appears.

    d. Click the “Add Lookup” button in the “String Builder” dialog that appears.

    e. Under the “Field:” field, select the “E-Mail To” item.

    f. Click “OK” twice.

12. Create the “emails” variable:

    a. Click the text “Variable: variable1.”

    b. Click “create a new variable…” in the menu that appears.

    c. Type “emails” in the “Name:” field.

    d. Click “OK.”

13. Create the “Send E-Mail” action:

    a. Click the “Actions ↓” button.

    b. Click “Send an Email” in the menu that appears.

    c. Click the “this message” text that appears.

    d. The “Define E-mail message” dialog appears.

        i. Next to the “To:” field, click the button with a book icon.
        ii. The “Select Users” dialog appears.
            Select “Workflow Lookup…”
            Click the “Add >>” button.
        iii. The “Define Workflow Lookup” dialog appears.
            Select “Workflow Data” from the “Source:” dropdown.
            Select “Variable: emails” from the “Field:” dropdown.
        iv. Click “OK” twice.
        v. Type an appropriate e-mail subject.
        vi. Click the “Add Lookup to Body” in the bottom left of the “Define E-mail message” dialog.
        vii. The “Define Workflow Lookup” dialog appears.
            Select “Workflow Data” from the “Source:” dropdown.
            Select “Variable: body” from the “Field:” dropdown.
        viii. Click “OK” twice.

14. Click “Finish.”