# STU 060: UDW+ Student Ad Hoc Reports Intermediate Classroom Training Curriculum

**Version 1.9**

**Decision Support Group**

# Table of Contents

## Subject Areas: group similar data elements together that answer specific business questions.

### SIS - Term Registration
Reports on all students that have been **term activated** and are **eligible to enroll for a given term**.
Includes: cumulative and term based metrics (units attempted, GPA), headcounts, student academic group & org, CPP stack, student attributes (academic level, new continuing type, academic load, etc.) and advisor attributes.

### SIS - Class Enrollment
Reports on **courses that have had enrollment activity**.   Includes: headcounts, units, student academic group & org, course academic group & org, course attributes, instructor attributes, and student attributes, and CPP stack.
Allows reporting on individual class enrollment headcounts as well combined class total headcounts.
*The level of grain for the Class Enrollment Fact is one row per: Term, Session, Student, Class Section.  It is important to note that including fields such as instructor, career, program, plan, subplan, student groups or service indicators may increase the numbers of rows per student, that are returned in a result set, thus changing the grain level.*

### SIS - Degrees
Reports on **degrees that have been conferred**.  Includes student acad group and org, CPP stack, degree attributes, and count of degrees awarded, revoked, and total.  No student addresses.

### SIS - Student Test Scores
View **history of test scores** for students, such as ACT, SAT, GRE.

### SIS - Class Meeting Pattern
Reports on attributes related to the class, such as **meeting place, meeting time, meeting patterns**, instructors, enrolled and waitlisted headcounts . Reports on **classes, regardless if there has been enrollment activity**. **No student detail.**  * *Pulling in instructor and meeting pattern attributes may retrieve many records associated with a class, thus changing the grain level.*

### SIS – Career History
View **majors, and minors, by Program** for students.  This will answer questions about **status of a student** in a program (**completed, discontinued, leave of absence or active**).  This subject area is program based, not term based and **shows students regardless if they are term-activated.**  Shows latest effective date.

### SIS – Class Roster
A **combination of select attributes from the Class Enrollment and Class Meeting Pattern** subject areas. It will only pull back the Primary CPP of a student, and not their majors or minors.  This will only show one row per student.  It will **only show terms that are *active* or *open for enrollment*.**

### *Separate Curricula*

## SIS - Registration Pipeline
Allows **"same time last year" and "year over year" comparison** of headcount and points, as well as **entry group** and **financial clearance** information. It contains **current data and census data** and allows schools to compare where they are today versus where they are at census (actuals to goals comparison). It contains list of entire list of students, including **students who are on leave of absence who were not term activated**.

Registration Pipeline Metadata & Ad Hoc Reports Training Curriculum

## SIS - Retention
Analyze a **cohort** (a group of students who enter NYU at a specific point in time) using different demographic, social, academic, and other facts.  Allows the Office of Institutional Research and Data Integrity (and other advanced users at the University) to improve their understanding of patterns of **student progression, characteristics of student cohorts who persist or leave, predictive modeling, and student success measurements**.  Updated after each official census to identify changes in enrollment status and other attributes.

Retention Subject Area metadata
Retention Ad Hoc Reports Training Curriculum

## SIS – Retention Summary
Use this subject area to query **high level summary data**. Tracks summary cohort counts based on term, school, new/continuing type, degree and first time full time flag.  It **does not contain student level details**.

## UDW+ Ad Hoc Templates: Authorized Analyses- DSG Folder

1. Navigate to the **Catalog > Shared Folders > School and Administrative Folders > Authorized Analyses- DSG > Student Data Reporting > Templates > Intermediate Ad Hoc**.
2. **Copy** the **six (6) queries** in the **Intermediate Ad Hoc** folder and **paste** them into your **My Folders**.
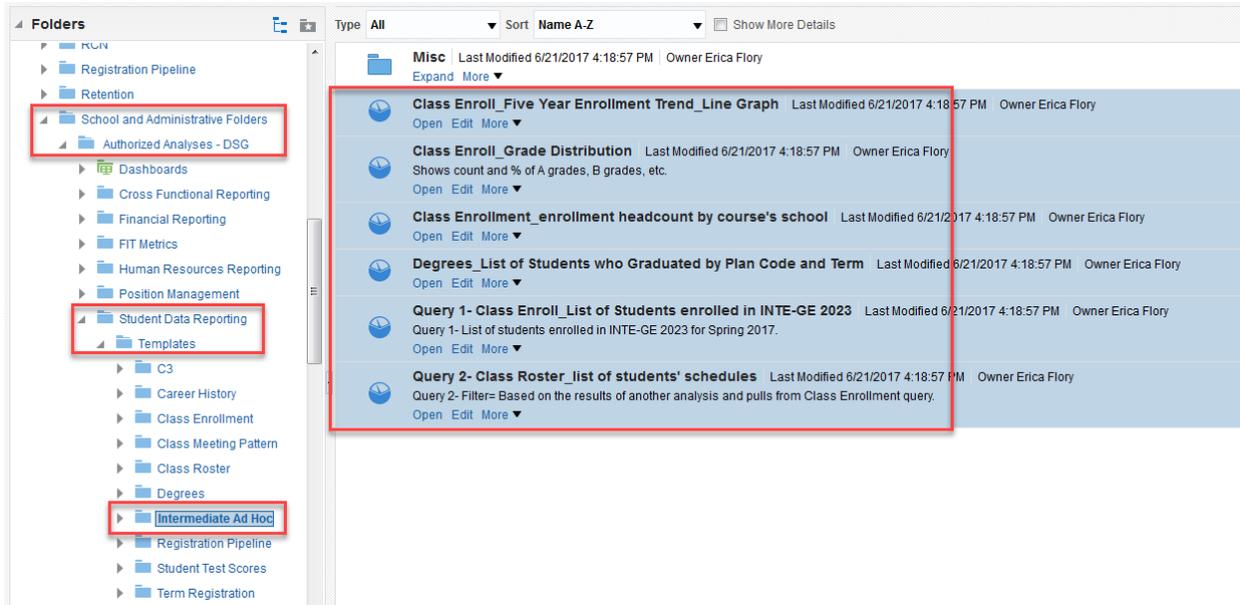
**Pivot Table**

1. Choose **Edit** for *Class Enrolment_ five year enrollment trend_line graph.* This shows enrollment trend for the past five years, for a few courses in Psychology.

2. Select the **SIS - Class Enrollment** subject area Add a **New View** and select **Pivot Table.**
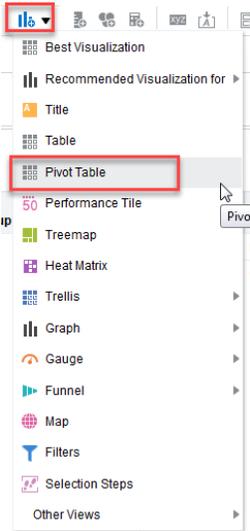
3. Edit the Pivot Table by clicking on the **pencil** icon.
4. Make the following **edits**:
   1) **Column**: Academic Year Label
   2) **Rows**: Subject/Number/Title & Term Type
   3) **Excluded**: Section Type & Class Section
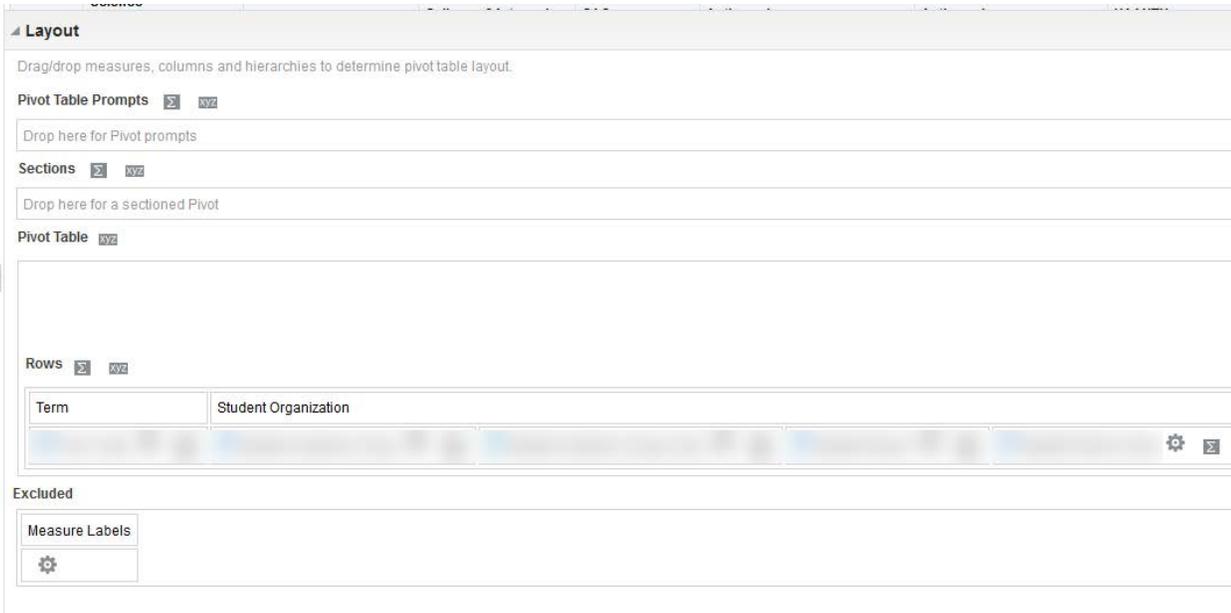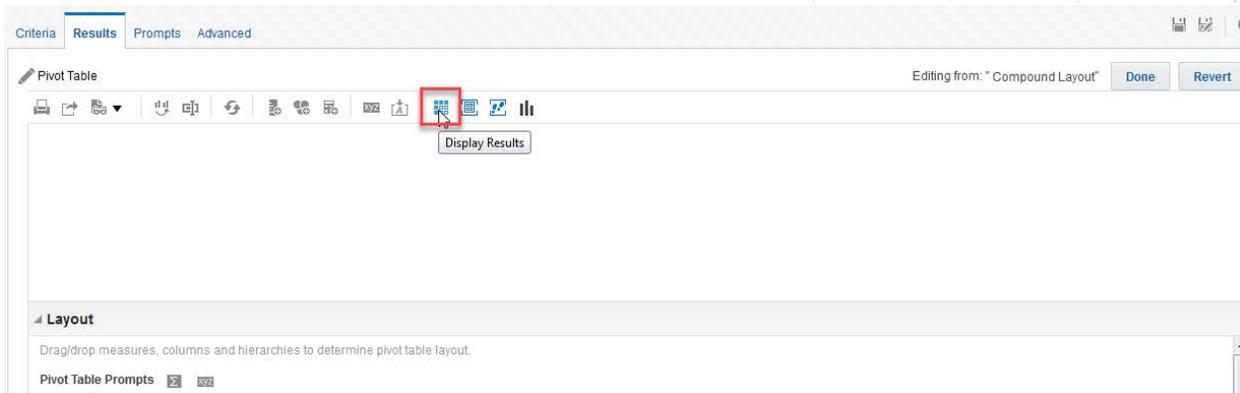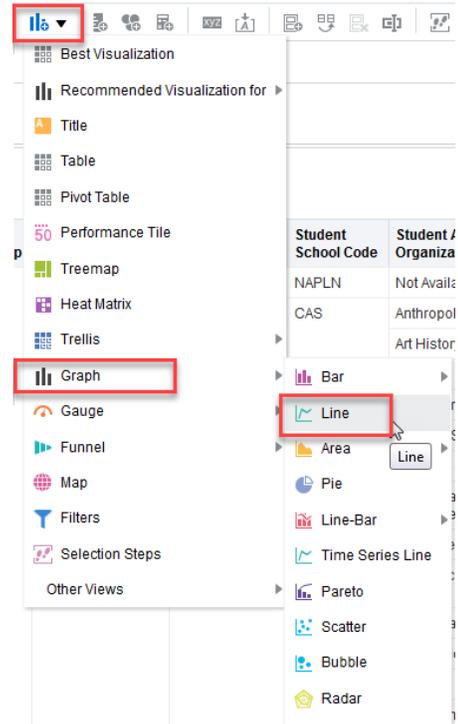
## Graph

5. Add a **New View**    and select **Graph** > **Line .**

UDW+ will attempt to create a visualization based on your data set and type of Graph selected (this almost always needs to be edited).

6. **Edit** the Line Graph by clicking on the **pencil** icon.
7. **Hide** the Display Results by clicking on the mini graph.

8. Make the following **edits**:
    1) **Line**: Academic Year Label
    2) **Vary Color By**: Subject/Number/Title
    3) **Excluded**: Term Type, Section Type, Class Section

If you wish to modify the graph properties, you may do so by clicking on the **Edit graph properties**    icon.

9. Click **Done** and view your graph.
10. **Save** your analysis as "**Class Enrollment_**".

## Recommended Visualization

Provides a ranked-list of viewing suggestions, based on the data in the analysis. This feature recommends the optimal visualization option (including all of the new views/charts that are available).
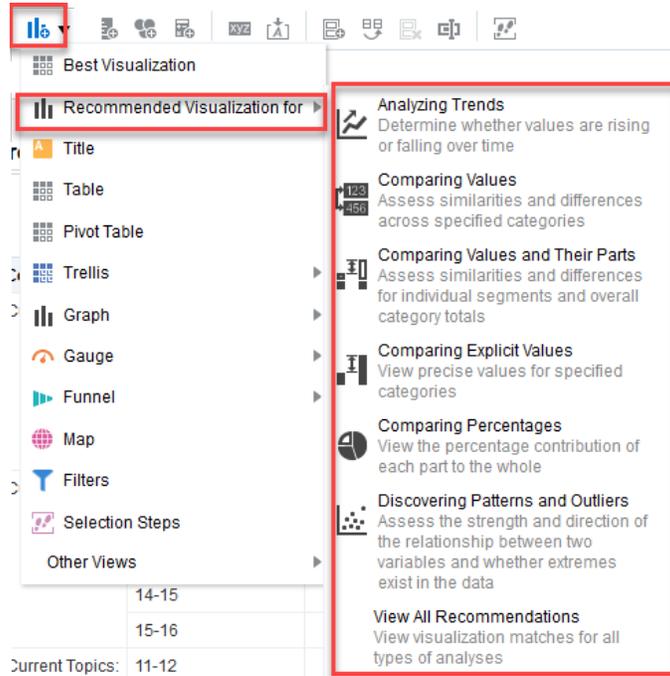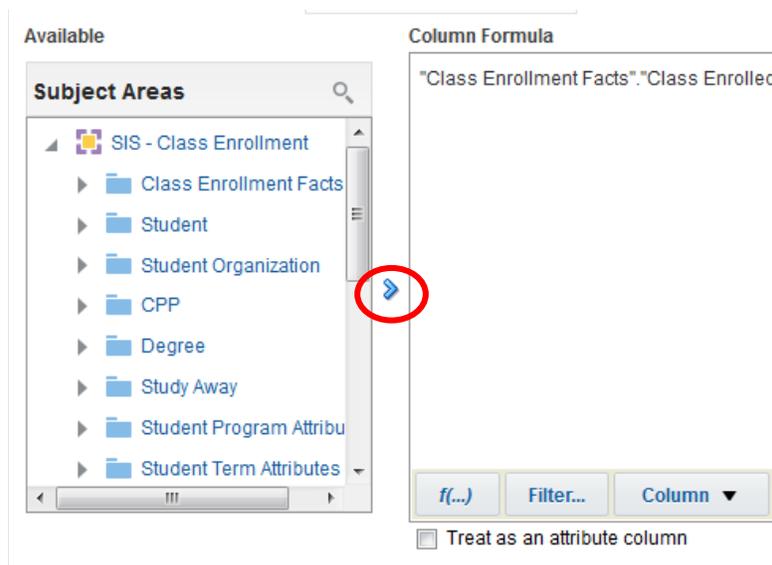
**Formulas**

The "Edit Formula" option lets you use that field in a mathematical formula of some sort. This can include everything from simply adding two fields together to implementing complex programming logic.
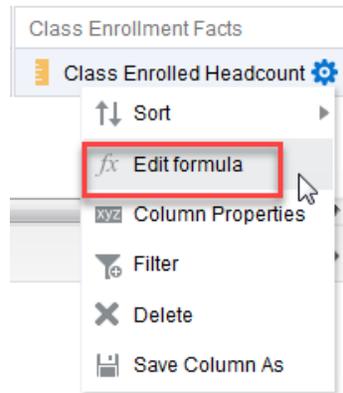


It's quite possible that your formula will just involve doing simple math operations or string concatenation involving two or more fields. The eight buttons on the right side of the row just beneath the "Column Formula" box let you do exactly that. You can add, subtract, multiply, or divide two fields with the first four buttons. You can convert numeric values to percentages with the next, define operational order with the two parenthesis buttons, and concatenate two text values with the last button.



To add columns, you can use the "Column" button to choose them from a list, which allows you to select columns that are already in your analysis, even if they have been renamed or given a new formula (definitely the easier way to go). Or you can highlight the data element and on the left hand side and click on the blue arrow ≫ to add to the Column Formula, which allows you to select columns that are *not* already included in your analysis.

To create a mathematical formula, you begin by *adding a data element* of the same data type as the computed item (for example, if you want to create a new fact, choose a fact field).  You then *rename the folder heading and column heading* and *delete the formula* presently there.  You have now created a **"***blank slate***"** to write a new formula.

*Create a formula for % of enrollment.*

| Class Section | Class Enrolled Headcount | Enrollment Capacity | % of Enrollment |
|---|---|---|---|
| 001 | 13 | 24.00 | 54.17% |
| 001 | 11 | 20.00 | 55.00% |
| 001 | 12 | 30.00 | 40.00% |
| 001 | 12 | 20.00 | 60.00% |

1. **Navigate** to the query *Class Enrollment_ enrollment headcount by course's school* and Choose **Edit**.
2. Add **any fact data element** to your analysis.
3. Select **Edit Formula** [icon] from the options drop down menu for **the fact data element** you brought in.
4. In the **Column Formula** box, **delete** the default formula presently there.
5. Check off **Custom Headings.**
   a. Rename the **Folder Heading** to **"Calculated Field"**.
   b. Rename the **Column Heading** to "**% of Enrollment**".

**Edit Column Formula**

Column Formula | Bins

Folder Heading | Calculated Field

Column Heading | % of Enrollment

☑ Custom Headings
☐ Contains HTML Markup

6. Create the following custom formula, selecting columns from the [Column ▼] button.

   ==(Class Enrolled Headcount / Enrollment Capacity)==

7. When finished, click **OK.**

Column Formula

"Class Enrollment Facts"."Class Enrolled Headcount"/"Measures"."Enrollment Capacity"

8. Make this column have a percentage sign by selecting **Column Properties** ⬚ from the drop down box. Go to the **Data Format** tab and check "Override Default Data Format". In "Treat Number As" select **Percentage**. Check off "**Scale for % (x100)**."
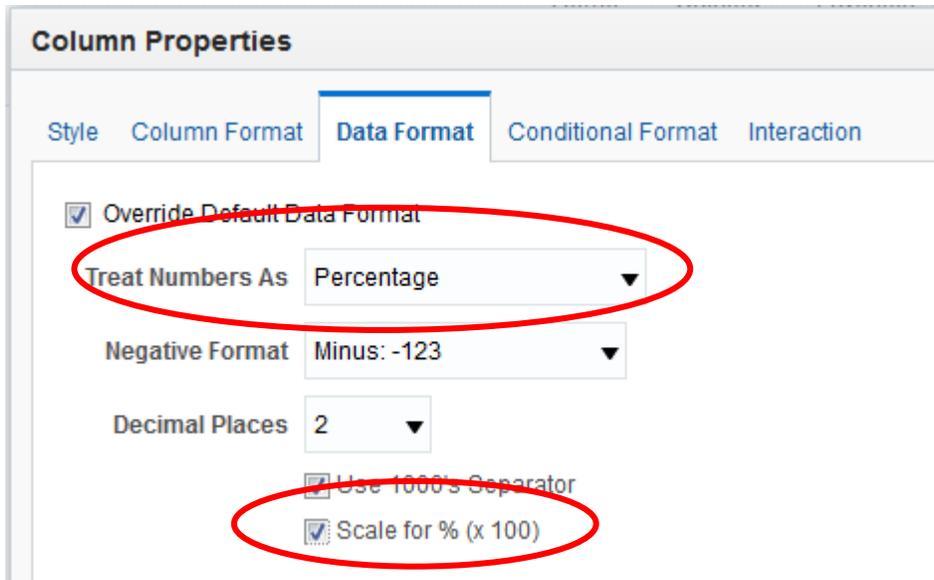


9. Run **Results**. **Save** your analysis.
10. Note you can also create a Calculated Field from the **Results** tab using the "**New Calculated Measure**" icon ⬚.
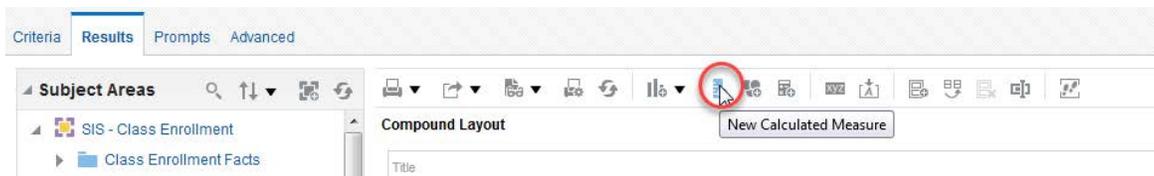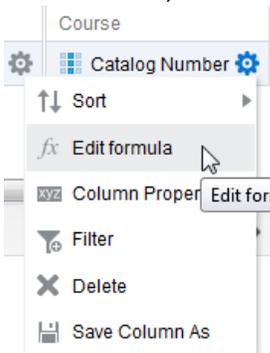
## Functions

For more complicated formulas, you can click the "Insert Function" button to see over 100 predefined functions in the following categories: aggregate, running aggregate, string, math, calendar/date, data type conversion, system information, conditional branching expressions, database functions, and time series calculations.

You can combine and nest these functions in a wide variety of configurations. Note that when you select one, some information about that function, including syntax and a brief description, appears at the bottom of the dialog box.

Finally, be aware that if the column name is highlighted in the "Column Formula" box of the previous dialog box, and you insert a function that includes an expression ("expr") as part of its syntax, OBIEE will actually insert the column name into the function for you, saving you some work.

*Change the format of a text dimension (i.e. Catalog Number), to be treated as a number for sorting purposes.*

1. In Criteria tab, find "Catalog Number" field in the Selected Columns and go to **Edit formula**.



2. **Highlight** field and click on **Insert Function**  .
3. Under **Aggregate** folder, choose **Cast** and then OK.
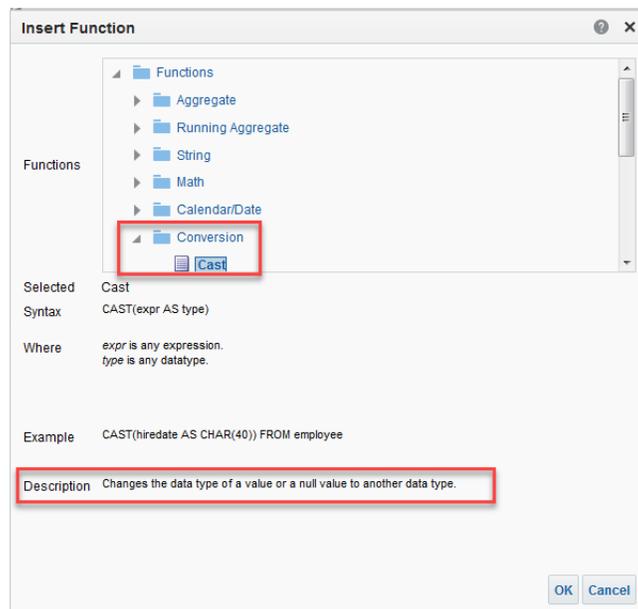
4. Highlight **type** and type in **INTEGER.**

**Column Formula**

CAST("Course"."Catalog Number"AS INTEGER)

5. Check off "Customer Headings" and rename the Folder Heading to **Calculated Field** and column heading as **Catalog Number**.

6. Run **Results**. **Save** query.

A list of data types supported by OBIEE that can be used in the "Function" option.

### In-Column Filter

Another way to filter on a field is to create an in-column filter. It is another way to show facts as columns, without using a pivot table. Query filters should match column filters.

| Subject/Number/Title | Fall 2015 | Fall 2016 |
|---|---|---|
| MATH-UA 120 Discrete Mathematics | | |
| MATH-UA 121 Calculus I | | |
| MATH-UA 122 Calculus II | | |
| MATH-UA 123 Calculus III | | |

*Let's create a filter on the column Class Enrollment Headcount to filter on Fall 2015 and Fall 2016.*

1. **Delete** ✖ the following fields:
   - **Term**
   - **Enrollment Capacity**
   - **% of Enrollment**
   - **Class Section**

2. **Edit** a filter for **Term**, to include Fall 2015.

3. On **Class Enrolled Headcount**, Click on **Edit Formula** $fx$ .

4. Click on Filter… **Filter...** .
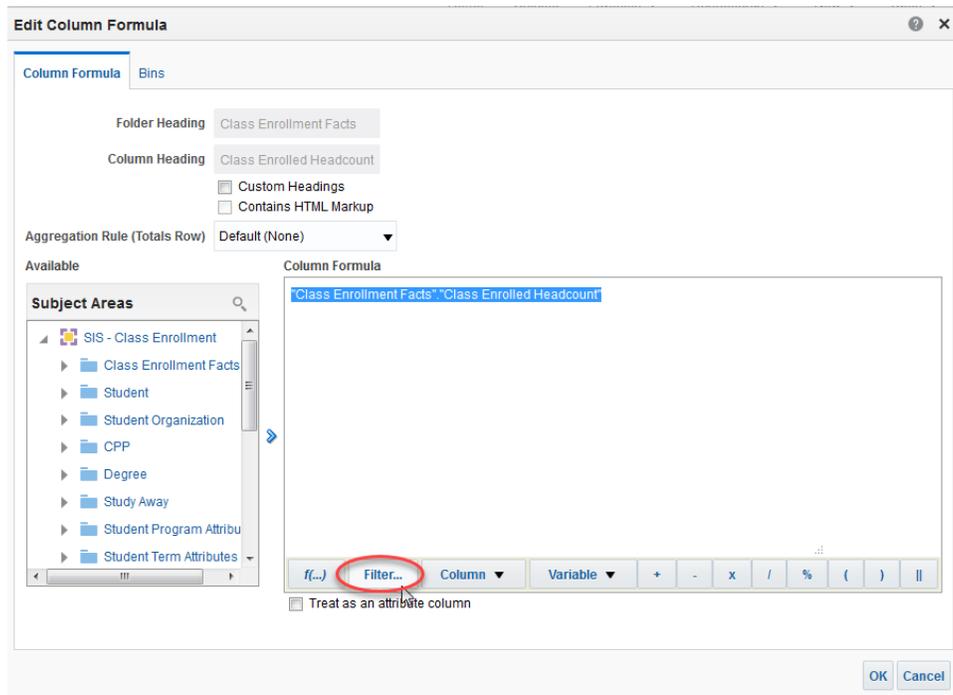
5. Find **Term Code** (Term folder) in the left hand side and double-click.
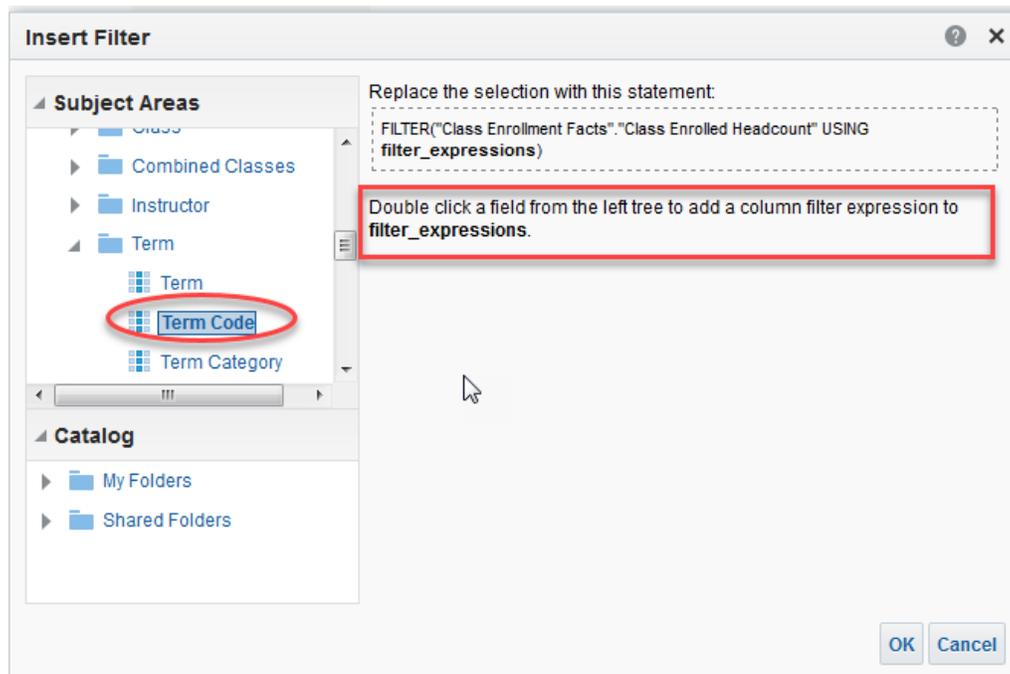


6. Enter **1158**. Click OK.
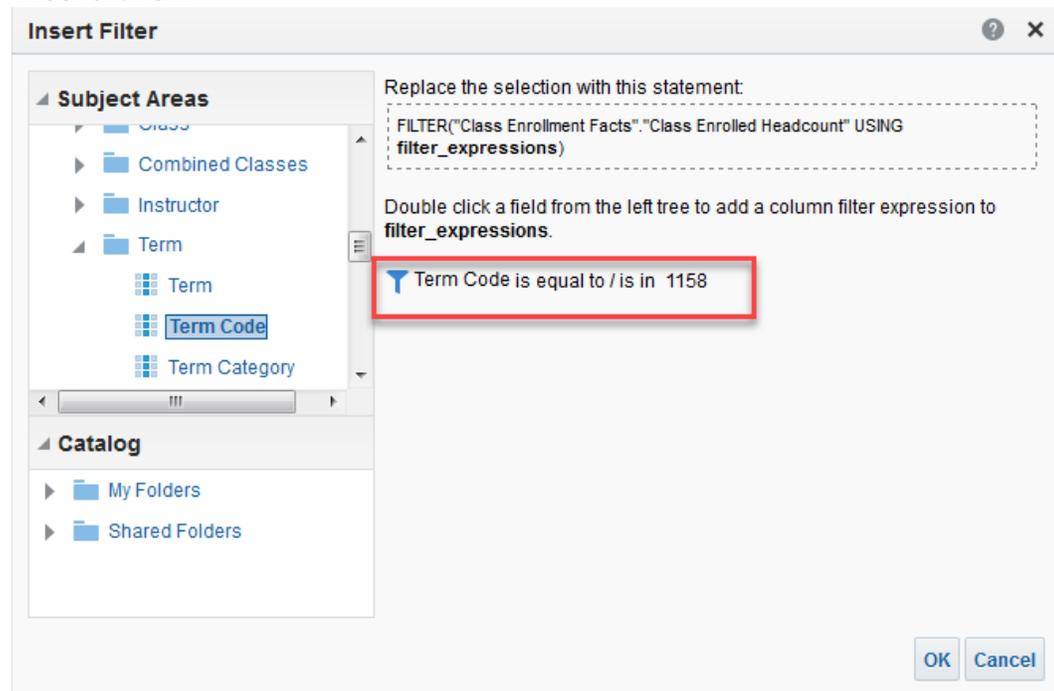
7. Change Folder Heading to "**Calculated Field**" and Column Heading to "**Fall 2015 Class Enrolled Headcount**."



8. Add in another column for **Class Enrolled Headcount** and repeat steps for **Fall 2016**.
9. **Save** query.

### AND/OR Filters

When you create filters on multiple fields within the same query, OBIEE's default is to add them as logical ANDs, as shown to the right. So every filter field must evaluate to TRUE for a particular record to appear in the results. If you want certai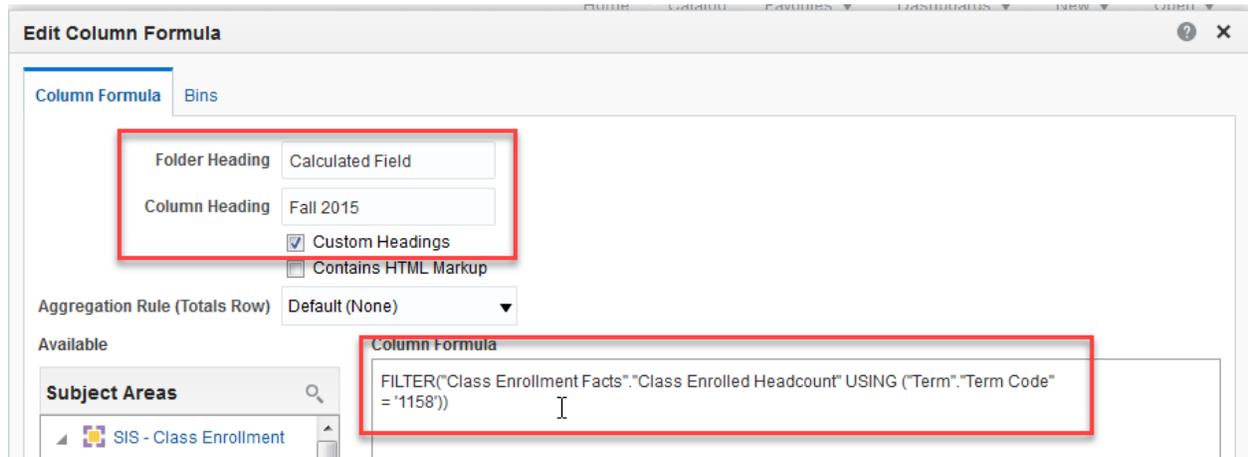n fields to be ORed together instead, so that only one or the other needs to be TRUE, just click the AND between those two fields. Similarly, clicking an OR will convert it back to an AND. Note that indentation indicates field groupings (the equivalent of parentheses in an SQL statement).

You can change the filter operator from '**AND**' to '**OR**'. Start with the inner most filter, click on 'AND' connector and it automatically converts into 'OR' and creates a group. Always click on the operator that is in between two filters that make up a group. *When working with and/or logic, create all filters first, and then work from the outside *in* to change the AND/OR.

*Let's create a query to show students with GPA's above 4.00 and below 2.00.*

1. Go to **Criteria** tab.

2. **Delete** ✖ the following fields:
   - **Fall 2015 Class Enrolled Headcount**
   - **Fall 2016 Class  Enrolled Headcount**

3. Add the following **columns** in the order below:
   Student
   - **Full Name**
   Student Organization
   - **Student Academic Group Code**
   Student Term Attributes
   - **Cumulative GPA**

4. Add the following **filters** 🔽⊕ :

   

   AND 🔽 Student Academic Group Code is equal to / is in  UE
   AND    🔽 Cumulative GPA  is greater than or equal to  4.0
   OR🔽 Cumulative GPA  is less than or equal to  2.0

5. **Click** on the "**AND**" for **Cumulative GPA** to change it to "**OR**".

6. **Save** query.

## Based on the Results of Another Analysis

You can create a filter that uses the **results of another query**. You select this option at the very bottom of the "Operator" dropdown. You would choose the "**is based on results of another analysis**" option.
In this dialog box, you choose the saved query, operator, and column that you want to use for filter values. When you execute this filtered query, OBIEE will first run the saved query, then show you only those results from the second query where the filter criteria are met. A good example of using this type of filter is when you want data in one subject area **only for a particular set of students** from another subject area.

For instance, if you wanted to know SAT scores (available in the Student Test Scores subject area) for students who received degrees in a specific major (from the Degrees subject area), you could create a degree query that included student IDs, then use that to filter an applicant query.

*Examples include:*

- *Identify the students who are in X academic plan for a particular term from Term Reg, then pull a history of all their previous terms and what their academic plan was for each of those terms in Term Reg.*
- *Identify a list of students who graduated in Degrees and then pull their addresses from Term Reg*

*Let's identify a list of students who are taking course X from Class Enrollment, then pull those students' course schedules, with the days and times of their courses in Class Roster. (Reminder: Class Roster only shows terms that are active or open for enrollment.)*

Query 1

1. Create a query that shows a **list of your students** in **Class Enrollment**, including their **N number**.
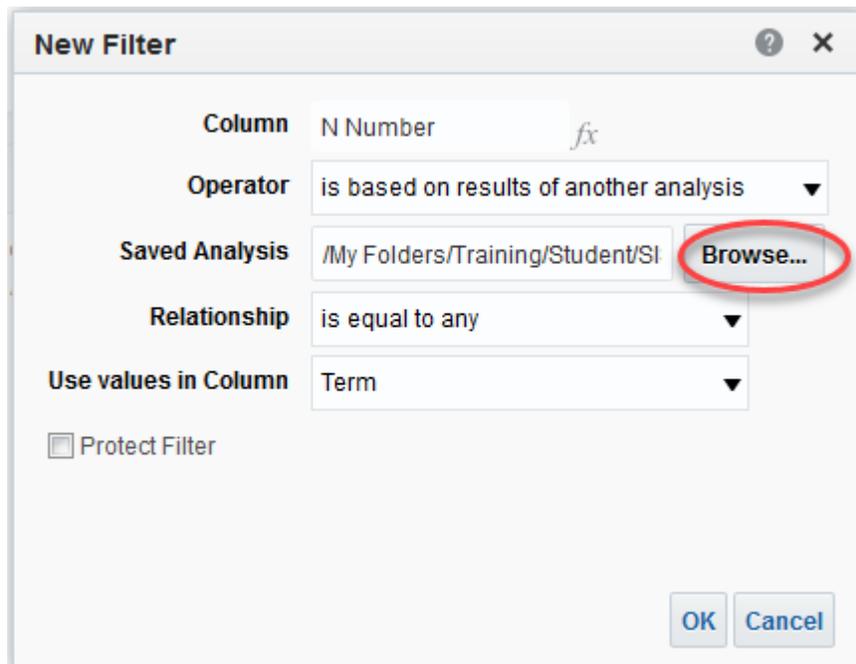   a. *Query 1- Class Enroll_List of students enrolled in INTE-GE 2023.*

Query 2

1. Create a second query in **Class Roster**, including their **N number** that shows a **list of students** and their **schedules**.
   a. *Query 2- Class Roster_list of students' schedules.*
2. **Delete** ✖ present filters, so you have no filters.

3. **Create** a filter for **N Number** and choose O**perator** as "**based on the results of another analysis**.

New Filter

Column  N Number  *fx*

Operator  is equal to / is in

Value

is equal to / is in
is not equal to / is not in
is less than
is greater than
is less than or equal to
is greater than or equal to
is between
is null
is not null
is ranked last
is ranked first
contains all
contains any
does not contain
begins with
ends with
is LIKE (pattern match)
is not LIKE (pattern match)
-----------------------------
is prompted
is based on results of another analysis

Protect F
Convert

OK  Cancel

4. For **Saved Analysis**, click on "**Browse**", find the name of **Query 1**.

New Filter

Column  N Number  *fx*

Operator  is based on results of another analysis

Saved Analysis  /My Folders/Training/Student/St  Browse...

Relationship  is equal to any

Use values in Column  Term

Protect Filter

OK  Cancel

5.  In "**Use Values in Column**", choose **N Number**.
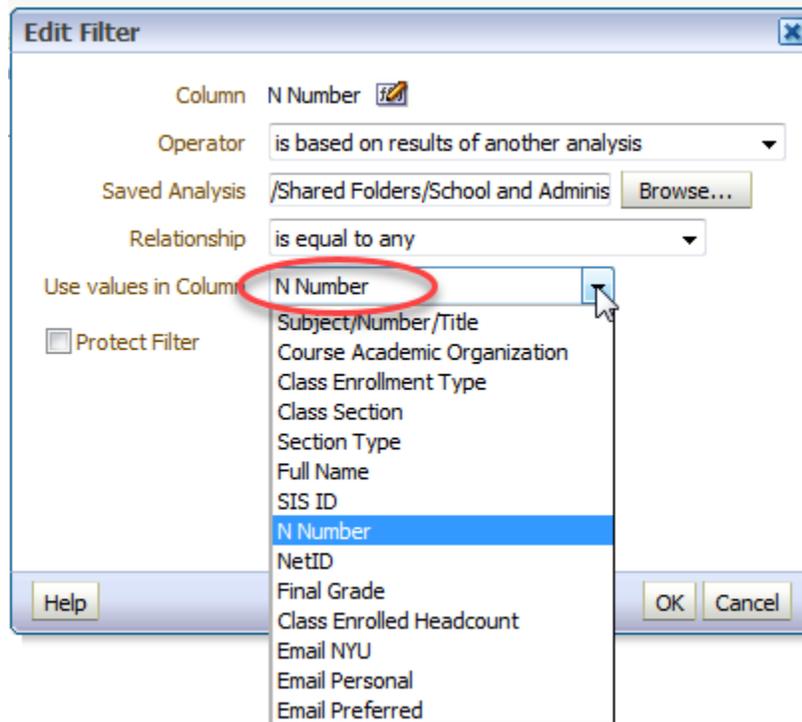


6.  **Query 2** will now show the course schedules data you need to see for only that specific group of people that **Query 1** showed.

**Combining Subject Areas**

You can **add** a subject area to another subject area when you need to see fields from both in one report.  There is a caveat however, which is that joining subject areas doesn't always work as expected.  These subject areas weren't designed with joining in mind, so they don't always play well together.  Something straightforward, such as bringing in one additional field should work.

Some tips to keep in mind:

1.  Both queries need to be at the same "grain level" in order for the query to return results.
2.  Start with your "driving" query and run it by itself.   The driving query is the one that defines your population and usually contains the majority of the fields you need.
3.  Sometimes adding in facts do not work.
4.  Get your row count and then add the new subject area and fields. At that point run it again and make sure you have the correct number of rows.

Click on the green **Add/Remove Subject Area**  button.
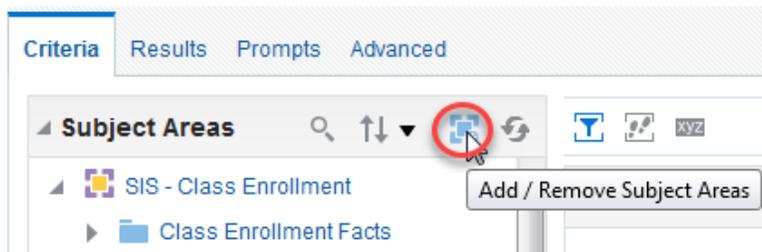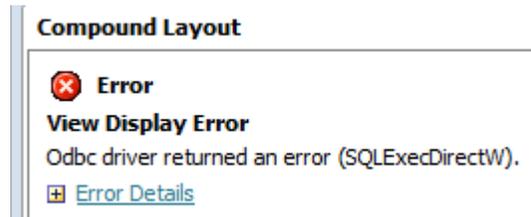


Then choose your subject area.
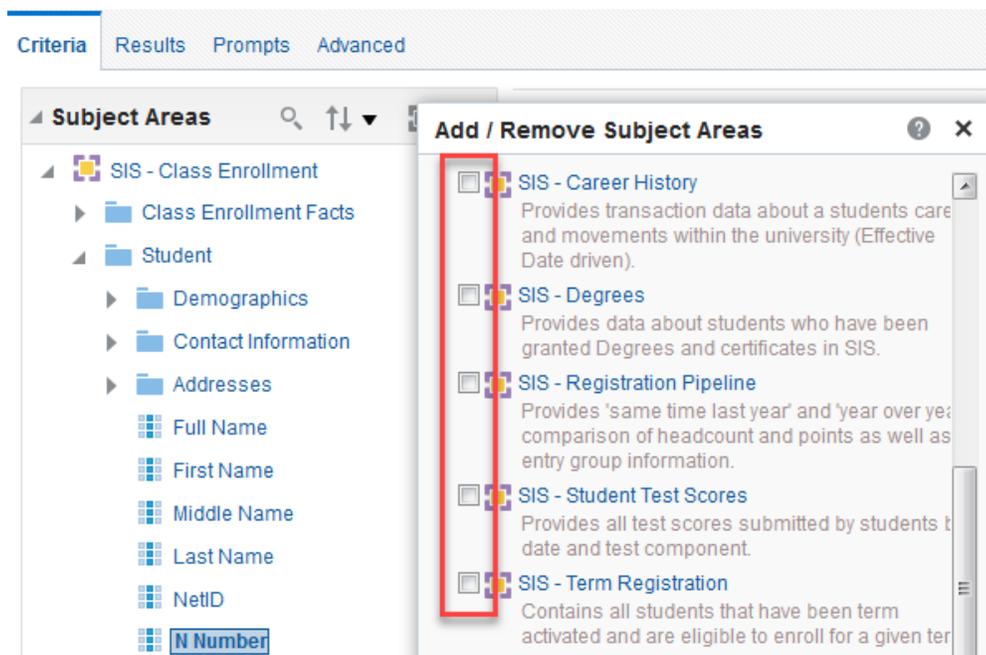
*Let's create a query that shows students who have graduated with a degree in Chemistry in Spring 2016, and then add in their email addresses from a different subject area.*

1. **Edit** query *Degrees_List of Students who graduated by Plan Code and Term*.
2. **Add**  the subject area "**Term Registration**".
3. **Add** the data element: **Email Personal** from the **Student > Contact Information folder**.
4. **Run Results.**
5. **Save**.

| Title | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Degrees_Degree Conferred Term by N# | | | | | | | | | | | | | | |

| Plan Type | Student Academic Organization | Plan Reporting School | Student Academic Group | Degree | Degree Sub Level | Degree Status | Degree Level | Career | Degree Conferred Term | Degree Conferred Date | Degree Status Date | Degree Awarded Count | Email NYU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Major Approved | Ctr for Urban Sci and Progress | CUSP | Ctr for Urban Sci and Progress | Master of Science | Masters | Awarded | Graduate | Graduate | Summer 2016 | 9/26/2016 | 9/26/2016 | 1 | |

6. Go to **Criteria** tab and **delete Email Personal**.
7. *Remove* the subject area "**Term Registration**" by un-checking it and *add* in **Class Enrollment**.
8. Bring in **Subject/Number/Title** from the **Course** folder.
9. **Run Results**.  *This will return no results because bringing in courses changes the "grain level" -you would have multiple rows per student and therefore the system cannot reconcile the data.*

**Compound Layout**

❌ **Error**

**View Display Error**
Odbc driver returned an error (SQLExecDirectW).
⊞ Error Details

Examples where it works:

- Starting with Class Enrollment and Bringing in "Birthdate" from Term Registration because it is one student to one birthdate.
- Starting with Class Enrollment and bringing in "Meeting Start Time" from Class Meeting Pattern.

Examples where it doesn't work:

- Using Class Enrollment with Class Meeting Pattern and bringing in student detail because Class Meeting Pattern does not have student detail.  Pulling in instructor and meeting pattern attributes in Class Meeting Pattern may retrieve many records associated with a class, thus changing the grain level.

**Bins**

Notice that the "Edit Column Formula" dialog box has a second, very tiny tab called, "Bins." You can use this tab to have OBIEE build a **CASE statement** for you in a formula (you can also create a CASE statement yourself by using one of the functions that appears under "Expressions" if you want). A CASE statement is a lot like an IF-THEN-ELSE statement, except that it's a little easier to read when you have multiple options. Basically, **it puts values in different buckets that you define**. Adding bins uses the same "Edit Formula" dialog box that we've already seen. After selecting values, you'll be asked to name the bin, which can be pretty much any text string. Note that there's also a checkbox that lets you create a bin for any values that you haven't specified; you'll also have to name that bin.

*Let's create a Grade Distribution Report for multiple courses.*

| Term Fall 2016 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Subject/Number/Title | Course Academic Organization | Class Enrollment Type | Section Type | Class Section | Grade Series | Count of Series Grades | % of Grade Distribution |
| | Hum/Soc Sci in the Professions | Enrollment Section | Lecture | 001 | A series | 29 | 80.56% |
| | | | | | B series | 6 | 16.67% |
| | | | | | N/A | 1 | 2.78% |
| | | Enrollment Section Total | | | Total | 36 | 100.00% |

**Edit** the query *Class Enroll_Grade Distribution*.

1. Sum the Class Enrolled Headcount

    a. Go to **Class Enrolled Headcount** and click on **Edit Formula** *fx* .
    b. In the "Edit Column Formula" box, check **Custom Headings.**
        - Rename the **Folder Heading** to *"Calculated Field"*.
        - Rename the **Column Heading** to "**SUM of Class Enrolled Headcount**".

    c. **Highlight** field and click on **Insert Function** [f(...)] .
        - Choose Aggregate > Sum and then OK.
    d. Put cursor before last parenthesis, and type in **BY**.

        - From [Column ▼], choose **Subject/Number**.
        - Insert "**,**"
        - From [Column ▼], choose **Class Section**.
    e. **Multiple** the formula by **1.0.**

**Column Formula**

1.0*SUM("Class Enrollment Facts"."Class Enrolled Headcount" by "Course"."Subject/Number","Class"."Class Section")

2. Count the Final Grade

    a. Go to **Final Grade** and click on **Edit Formula** *fx* .

    b. In the "Edit Column Formula" box, check **Custom Headings.**
- Rename the **Folder Heading** to *"Calculated Field"*.
- Rename the **Column Heading** to "**COUNT of Final Grade**".

    c. **Highlight** field and click on **Insert Function** f(...) .
- Choose **Aggregate** > **Count** and then OK.

    d. **Multiple** the formula by **1.0.**

**Column Formula**

```
1.0*COUNT("Grades"."Final Grade")
```

3. Calculate % of Grade Distribution

**(COUNT of Final Grade / SUM of Class Enrolled Headcount) *100**

    a. **Add** in any **fact** field.   **Edit Formula** *fx* .

    b. **Delete formula** presently there.
- **Rename** Folder Heading to "**Calculated Field**".
- **Rename** Column Heading to "**% of Grade Distribution**".

    c. **Divide Count of Final Grade** by **SUM of Class Enrolled Headcount**.
- When bringing in each column, **wrap it around parenthesis ( ).**

    d. Wrap entire formula in **( )** and **Multiple** by **100.**  Click OK.

    e. Go to **Column Properties** and on Data Format, change ""Treat Number as" **Percentage**.

**Column Formula**

```
(1.0*COUNT("Grades"."Final Grade"))/(1.0*SUM("Class Enrollment Facts"."Class Enrolled Headcount"
by "Course"."Subject/Number","Class"."Class Section"))*100
```

4. Create Bin for Grade Series

    a. For Final Grade Field, choose **Edit Formula** *fx* .

    b. **Rename** Folder Heading to "**Calculated Field**" and Column Heading to "**Grade Series**".

    c. Click on second tab called **Bins**.
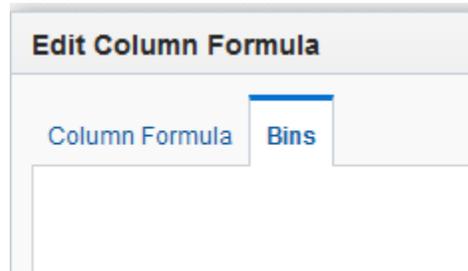


    d. In the lower left corner click **Add Bin.**

    e. In New Filter window, set **Final Grade** *begins with* "**A**".

    f. When prompted, **name** the bin "**A series**".

    g. Repeat for B grades, C grades, and dashes "-".

    h. Create a bin for "All other values" and name it **Other**.



    i. Run **Results**.

5. Change Aggregation Rule to Sum
   a. **Edit** the Table by clicking on the **pencil**  icon.
   b. **Exclude Sum of Class Enrolled Headcount.**
   c. Click on **More Options** for **% of Grade Distribution**.
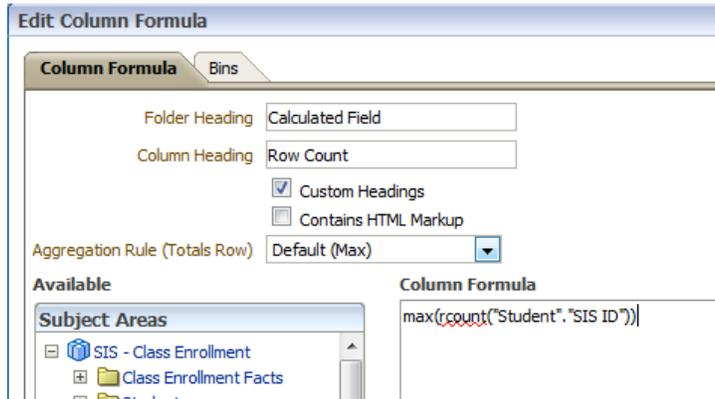


   d. Choose **Aggregation Rule > Sum**.
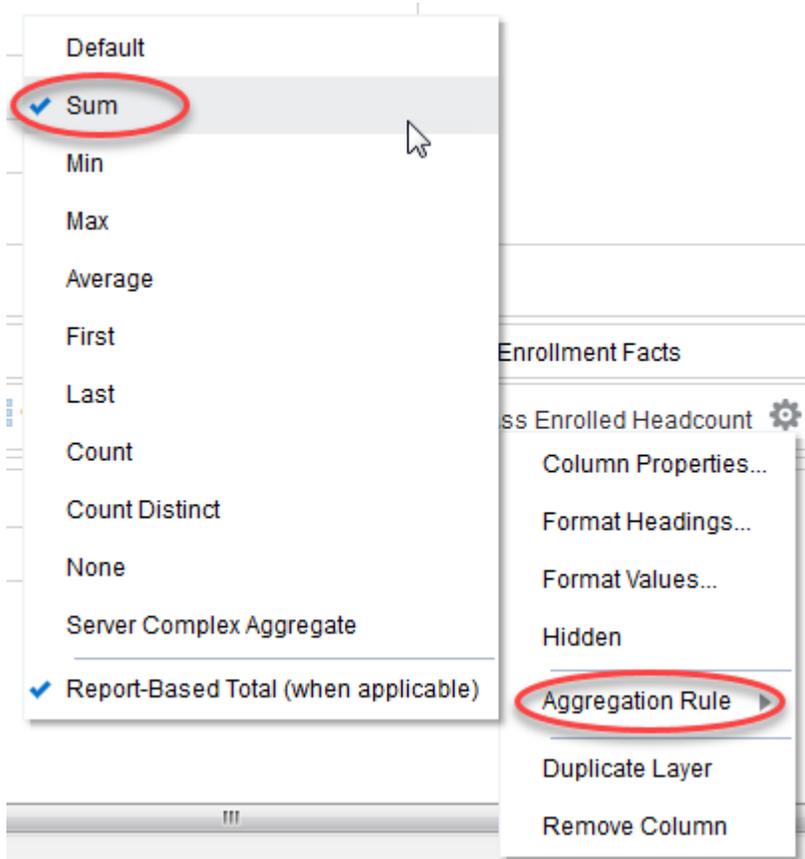


   e. Repeat for other calculated fields if rows are repeating.
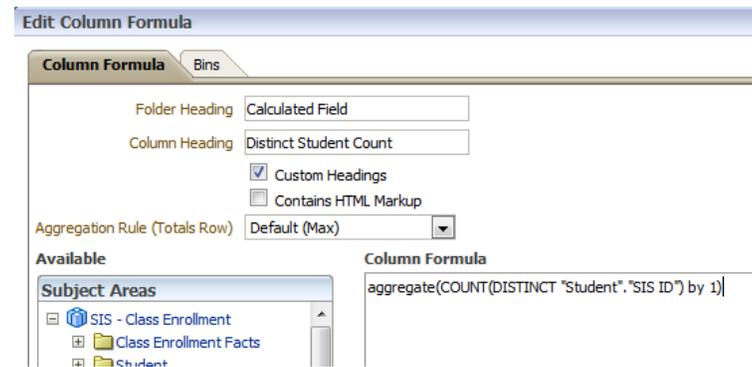   f. Click **Done**.

## APPENDIX

### Row Count

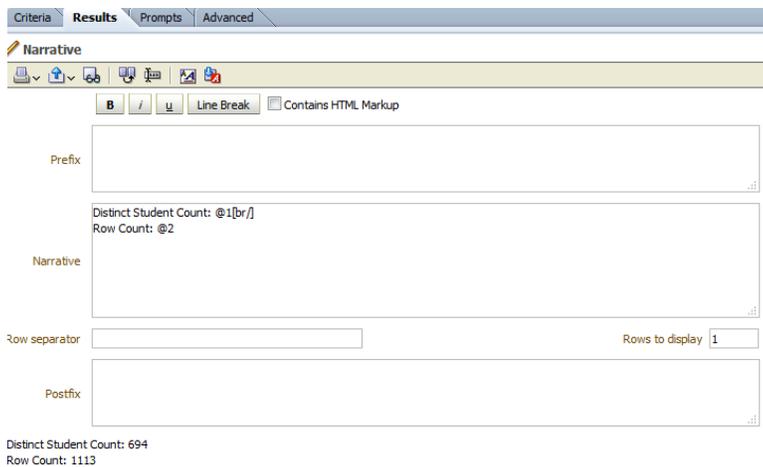Reduces available values displayed based on previous filters.

To count number of student records in query:



To count number of distinct student records in query:



Then create add in the "Narrative"  view and edit:

**Display Tooltip**

In the Criteria tab, Go to 'Column Properties' of a particular Column ->Data Format->Check "Override Default Data Format" and select 'Treat Numbers As : Custom'

In Custom Numeric Format, Copy paste this code: **[html]<p title=\""Comments which you want to Mention" \">#**

| Section Type | Academic Year Label | Term Type | Class Section | Class Enrolled Headcount | |
|---|---|---|---|---|---|
| : Seminar | 10-11 | Summer | 002 | 13 | |
| | 11-12 | Fall | 001 | 2 | Comments which you want to Mention |
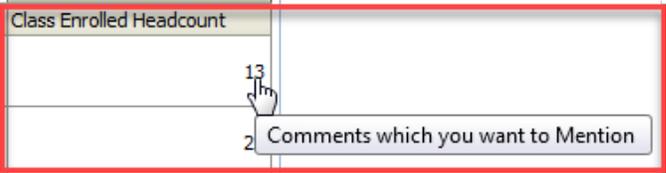
**Congratulations! You have successfully completed**

**STU 060: UDW+ Student Ad Hoc Reports Intermediate Classroom Training!**

**Contact**

The **Decision Support Group** (DSG) is here to help!

- Email: askDSG@nyu.edu
- Phone: 212-998-2900
- Web: www.nyu.edu/datawarehouse/dsg
- DSG Knowledge Base:  Dashboards→ UDW+ Help→ Knowledge Base Articles
  - o   UDW+ System Requirements
  - o   UDW+ Training and Access