



Term Census Reports Using Power BI Training Manual

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Introductions

InformSU

InformSU is Seattle University's platform for meeting the institution's reporting needs. It is the umbrella for all for all reporting capabilities across the campus.



InformSU will deploy data models on an ongoing basis through December 2020 as prioritized by InformSU project sponsors, the Executive Sponsor Committee, and the Technology Steering Committee. In order to best serve campus needs, InformSU will gladly accept requests for changes or enhancements to reporting on an ongoing basis and provide additional training opportunities as needed. These requests will be prioritized and approved by InformSU project sponsors prior to implementation.

Please go to the InformSU page (<https://www.seattleu.edu/its/informsu/>) for a current deployment schedule.

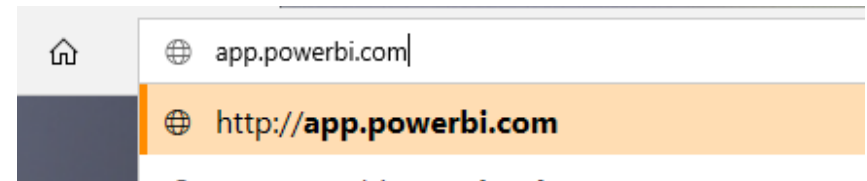
What is Power BI?

Power BI is a Microsoft business analytics service designed to analyze institutional data and share live, interactive insights. SU faculty and staff will be able to quickly access data and reports from multiple sources through a single, user-friendly platform. Users of this platform will be able to select the level of engagement with reporting, from deep dives into data to at-a-glance views of pre-defined metrics. In additions to reports, training will be available for users to leverage Power BI to access, integrate, and analyze data.

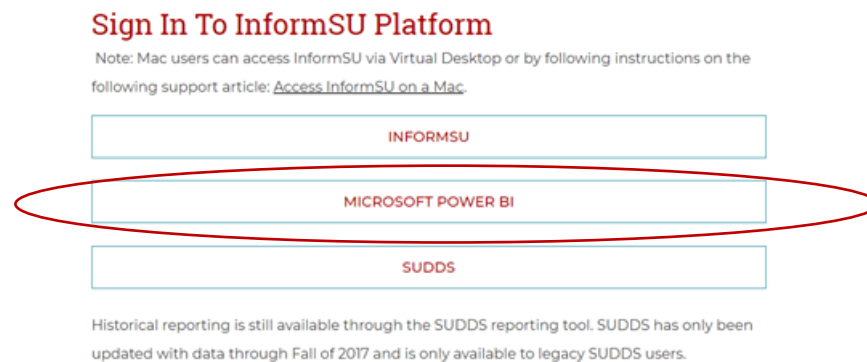


Navigating to the Power BI service

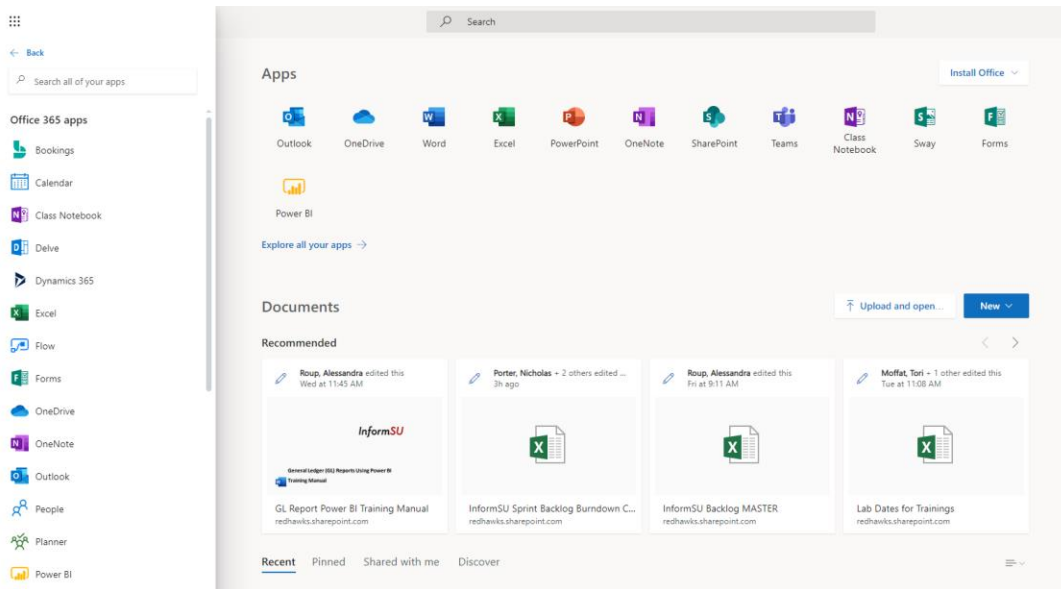
Official InformSU reports will be available to users on the Power BI service (app.powerbi.com). Users can navigate to the service in multiple ways:



1. Typing the above URL into your preferred browser (you can then bookmark the site for future quick access).
2. Using the following link to enter the Power BI platform from the InformSU portal:



3. Using the Office 365 (office.com) waffle. If you don't see Power BI on your app list, go to the upper left hand corner of the screen, click on the six dots to the left of the "Office 365", click on "All Apps", and scroll down to Power BI on the list of Office 365 applications.

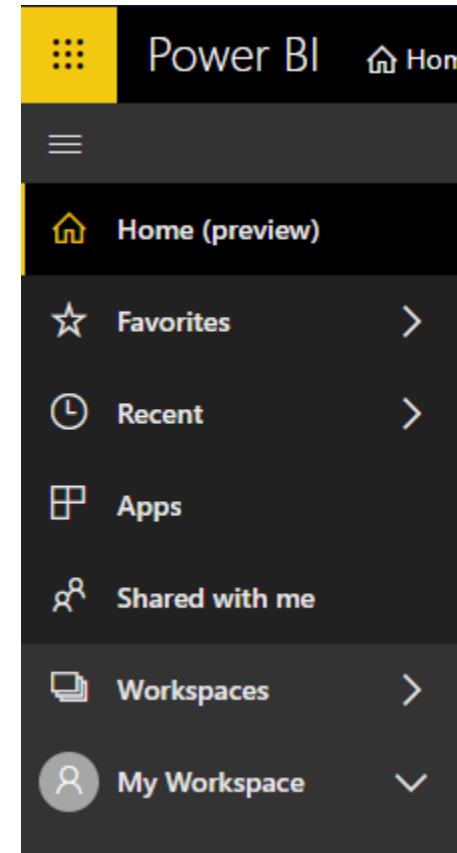
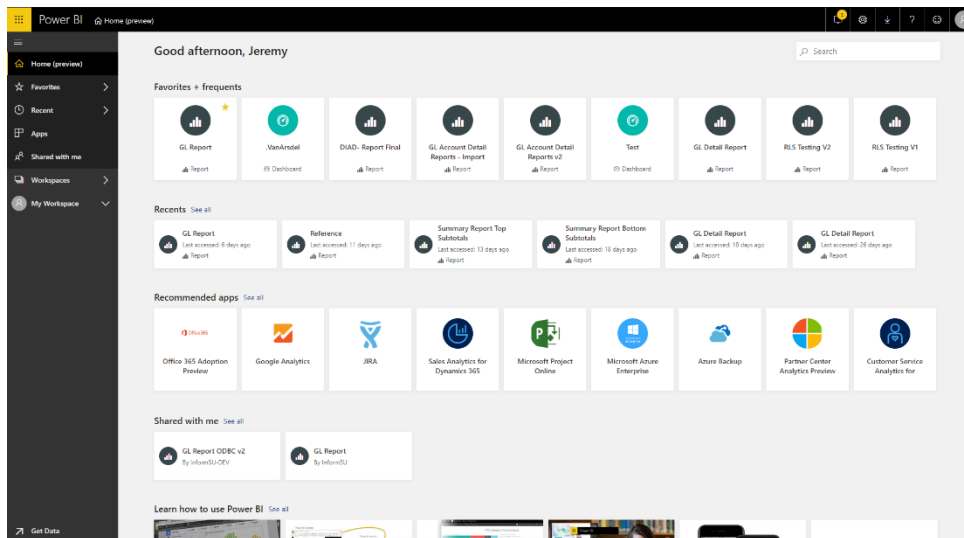


If you are asked for your credentials, users should use their regular SU username and password. These should be the same credentials users use for all other Office 365 applications.

Navigating around the Power BI service

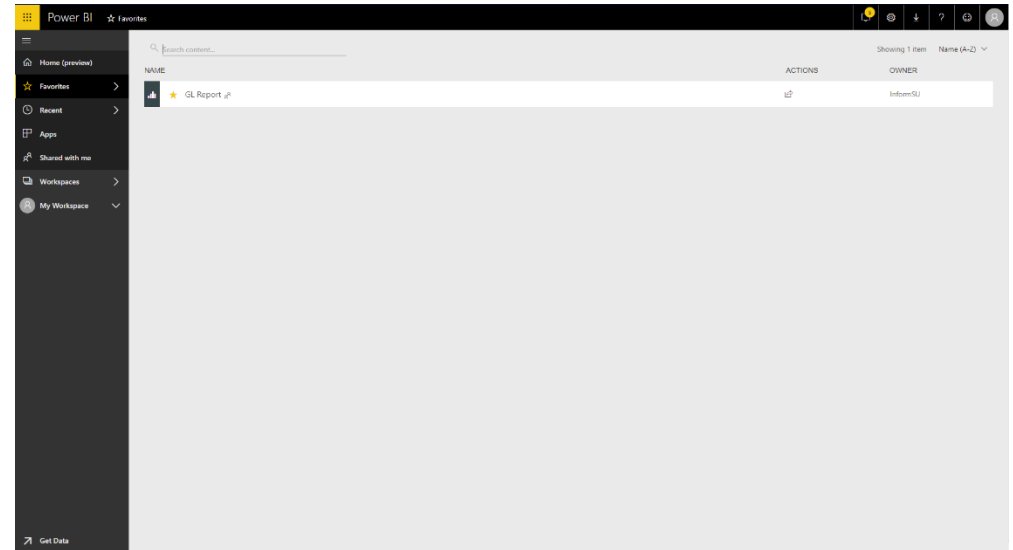
The pane on the left side of the workspace is the main navigation directory for Power BI.

Home (preview) – This is the landing page with a summary of items from the other navigation pane selections.



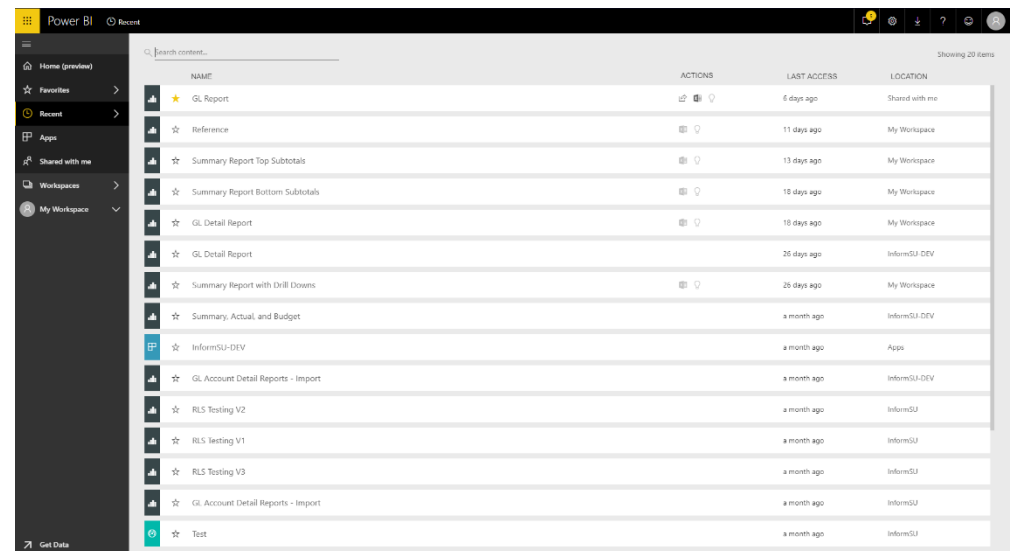
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Favorites – Users have the ability to favorite reports, dashboards, and other Power BI objects. Once a user has favorited something, use this selection to access those items.

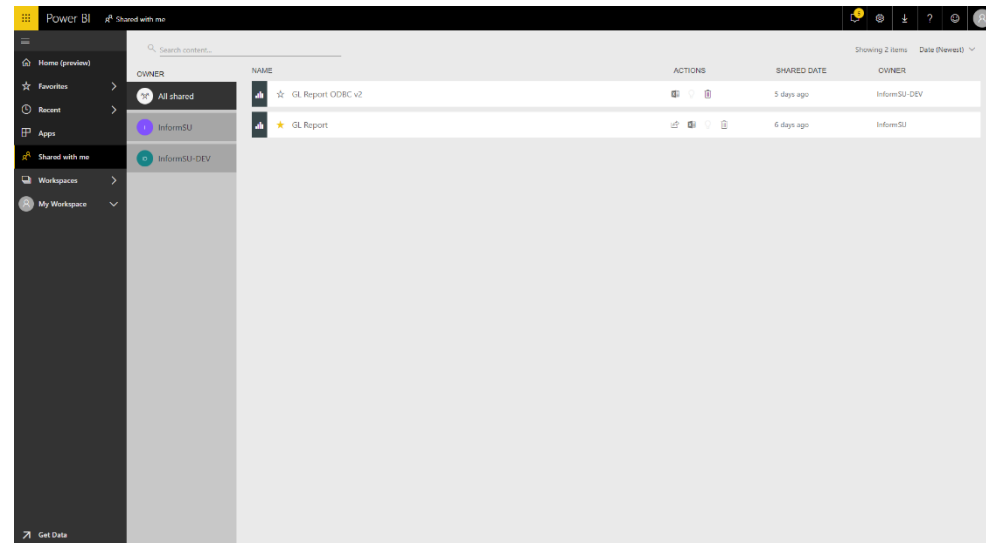


Recent – Here users will find Power BI objects you have most recently accessed. Much like the recent history in your web browser, you can quickly find items you have recently used.

Apps –SU is not using this functionality at this time.



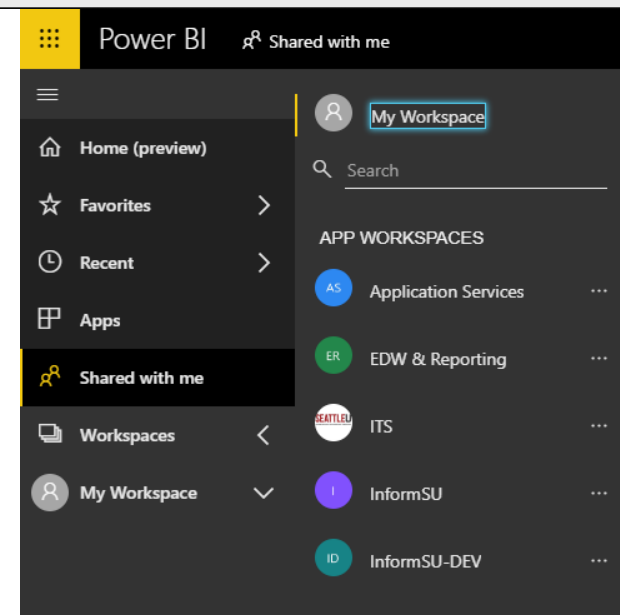
Shared with me – This is the location where users will find all the reports and/or dashboards which they have been granted access to. Report sharing and security are addressed on p. 14 of this manual



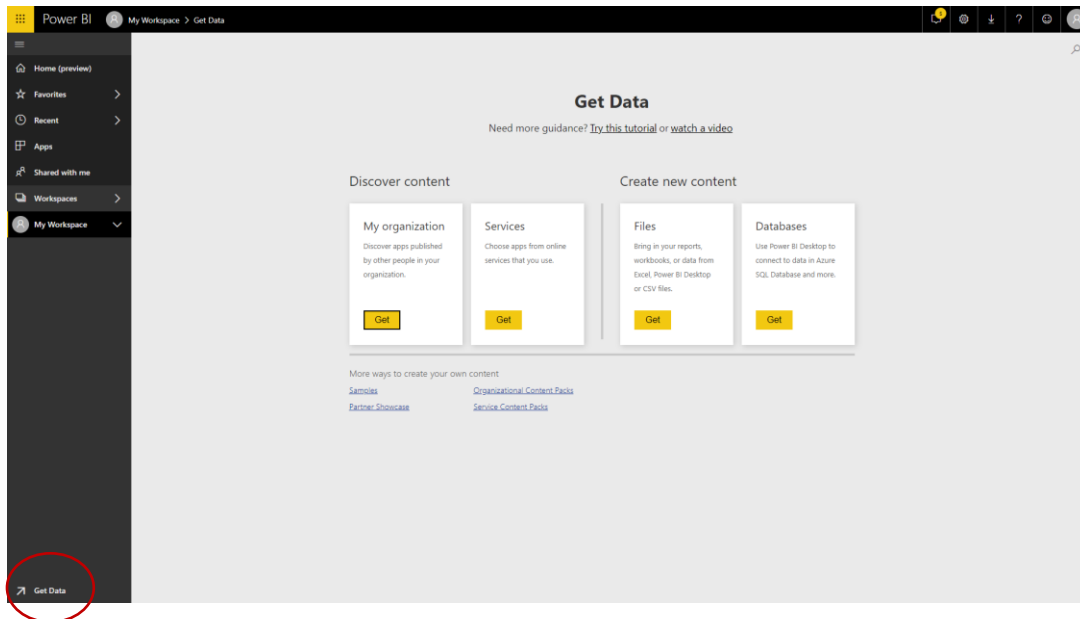
Workspaces – These are locations where user groups can share reports and dashboards with other members of their group. You may see that you are already part of group Workspaces this is due to the fact that any groups that are created in other Office 365 applications automatically have a corresponding Workspace created.

The InformSU workspace will be the repository for all official SU reports and dashboards. Only report developers will have access to the InformSU workspace, and it is from that location that all reports and dashboards will be shared. Pp. 14-15 of this manual cover how you can identify when an item has been shared from the InformSU workspace.

My Workspace – This is your own personal workspace for designing content within Power BI. Subsequent Power BI trainings will facilitate the use of this functionality. If you would like to start self-training sooner, please go to: <https://docs.microsoft.com/en-us/power-bi/guided-learning/>



Get Data – This is a quick link to ways to pull data into the Power BI service. For general users, this functionality will not be utilized. For other users, additional trainings will be available.



Accessing reports

As mentioned previously, all reports that you have been approved to have access to will be found in the “Shared with me” section of the navigation pane. In order to make it easier to find reports that are relevant to your needs, individual reports and/or dashboards are being shared rather than entire report folders or groupings. This not only makes for a better user experience, but it also reduces security risks as users will now only have access to the specific data they need rather than general buckets of data.

Requesting access to reports in Power BI is handled the same way as current reporting. Please refer to the InformSU website (<https://www.seattleu.edu/its/informsu/>) for further information on requesting access.

Upon viewing the reports that have been shared with you, you will see that each report has an Owner, which is a reference from the Workspace the report has been shared from (if you have had reports shared with you from multiple workspaces, you will find them grouped by Owner under the All Shared link on the left side). All official reports and dashboards will show the Owner as InformSU.



Report Security

Once a report has been shared with a user, that user will not be able to then share the report with a different user. While report data can be exported to Excel or to a PDF, please remember that SU's FERPA and Data Security policies are in effect when considering whether to share any university-related data that has been generated within Power BI. If you have questions as to whether or not you should be sharing report data, please contact your manager or one of the university's data stewards.

FERPA guidelines: <https://www.seattleu.edu/registrar/student-records/ferpa/>

Data Sources and Data Refreshes

Data for these reports is being sourced from our new Enterprise Data Warehouse (EDW) which resides in an Amazon Web Services cloud environment. These are term census-based data snapshots. The data update after the 10th day of each term.

Term Census Reports

The purpose of these reports are to answer questions concerning enrollment data and trends over time. Prior to their integration into Power BI, enrolled student term census data were primarily used as the basis for Institutional Research official reporting, including the fall Fact Files. These data are the official point-in-time view of each term's enrollment, registration, and credits generated. Combined with school/program/major and demographic information, these data provide an overview of how enrollment and registration patterns change over time and across different student populations.

The release of term census data constitutes the first comprehensive, longitudinal, organization-wide release of our census data. Subsequent additions to reports available in Power BI will broaden the scope of potential insights into other realms (for instance: admissions and student engagement & learning).

Data overview

Data available in Power BI extends back to 2008-09 academic years to the current (2018-19) academic year, and is available for every term, including summer. Information on basic student characteristics (new/continuing status, full/part time, academic level, student type) is displayed for each term as well as longitudinally. By-school/department/program/major information is also available for this period of time, also per term or for a series of terms/years. In addition, demographic characteristics (URM/Diverse status, detailed race/ethnicity, and gender) as well as denomination reports are also available.

Methodology

The data used in these reports come from Institutional Research's 10th day census data snapshots. Each term, IR works with the Registrar's office to identify and rectify data issues and get an accurate count of enrolled students as of the 10th day of the term. The 10th day of the term is used since it for two reasons: it occurs after the last add/drop day of the term and it allows the Registrar's office adequate time to update any additional data on students. The result is a consistent view of the data as of the start of each term.

Notes on Data

Power BI allows users to access and interact with information without having to understand the complexities associated with data merging and transformation. There are, however, some data nuances that are important to understand in order to best utilize the information presented in these reports.

The counts of students in these reports are distinct. To illustrate: students affiliated with more than major or program within a particular school would only be counted once **at the school level**. If that same student has a major in two different schools, that student would be counted in both – if the counts are per school. For counts at the department level, students who have a major in two separate departments but in the same school will be counted twice.

Throughout this training we refer to **Major/Program** as the most detailed grouping in the university affiliation hierarchy. At the undergraduate level, students may be associated with one primary academic program but may have multiple majors (due to idiosyncrasies of the data system), thus, we combined both program and major information into a single category in order to provide the most complete count of students in departments/programs/majors.

Because these data are for a 10 academic year span, or 43 terms, there are a number of department/program names that appear different than they do now. Although we have undertaken efforts to normalize these historic data to eliminate heterogeneity in spellings and appearances in names, this will be an ongoing harmonization process. Future iterations of the data model will address these inconsistencies We welcome your feedback about both the accuracy of the data and the optimization of report layout.

Power BI Building Blocks

Microsoft Power BI is a collection of software services, apps, and connectors that work together to turn diverse sources of data into coherent, visually immersive, and interactive insights.

Power BI relies on basic set of building blocks to create these insights:

- **Datasets:** A **dataset** is a collection of data that Power BI uses to create its visualizations. The Power BI desktop tool provides an extensive set of data connectors and tools to extract, transform, and integrate data for reports. ITS and IR will provide datasets curated for reporting for most users, although we anticipate that there will be a group of power users who will opt to construct and integrate their own datasets.
- **Reports:** In Power BI, a **report** is a collection of visualizations that appear together on one or more pages. The visualizations in a report in Power BI are collection of data elements and themes that are related to each other.
- **Visualizations:** **Visualizations** can be simple, like a single number that represents something significant, or they can be visually complex. The goal of a visual is to present data in a way that provides context and insights, both of which would probably be difficult to discern from a raw table of numbers or text.
- **Slicers:** **Slicers** are visualization designed specifically for users to select and filter into relevant data.
- **Dashboards:** A Power BI **dashboard** is a collection of visuals from one or more report onto a single page that users can share with others. Dashboards allow for quick insight across multiple reports and provide users an easy way to navigate to different reports.

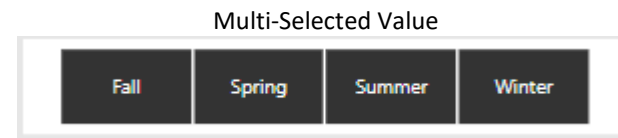
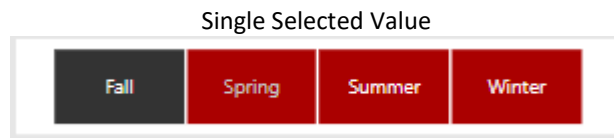
Overview

Visualizations, Slicers, and Interactions

The overview arranges slicers at the top of the page horizontally. Users can select the term and academic year of interest.

Slicers


Select each term of interest and Power BI will slice and indicate the selection.



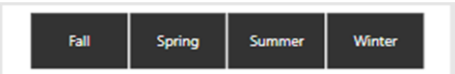
Quick Tip: Slicer Defaults

The Power BI default for unselected filters is to show all. By unselecting the elements in a slicer, the data will return to a select all status

So this view of the slicer



is the same as



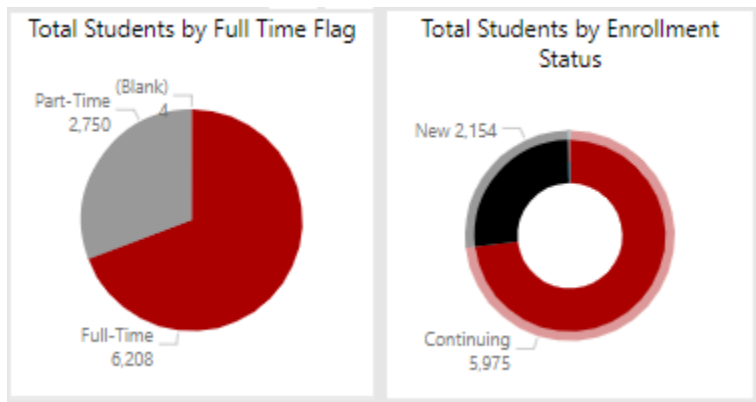
Highlighting and Interactions

Visualization tiles (non-slicers) cross-highlight the data. Selecting an element within a visualization will highlight the associated records with data on the adjacent fields. Users can select anywhere within the visual element on most tiles to highlight data. This includes fields on the axes.

Quick Tip: Multi-Select Across Visualizations

It is possible to select across multiple visualization tiles to highlight specific data. Do this by using holding the ctrl key while making a selection.

Here selecting the Full-Time status highlights the Full-Time students in the Total Students by Enrollment Status tile. This visually represents the proportion of new and continuing students who are full time. Any other visualizations in the same report would also highlight only full-time students. Clicking on the white part of the tile to un-select any category/characteristic that has been selected in a tile or any other visualization.



Focus Mode

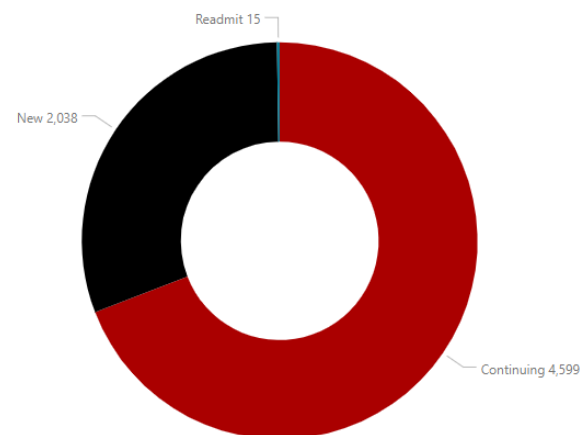
Focus mode allows users to expand the visualization to full screen.

The Focus Mode button will appear when users rollover a tile. `

To see the data in the visual select Show Data from the ellipsis dropdown next to the Focus Mode icon.



Select Back to Report to return to the report. The highlighting across visuals will apply once you go back to the report.



Information and Resources

For information about the report, select information icon



Navigating between reports

Users can navigate between report pages in two ways.

The first is by using the navigation links on the left side of the report page. The summary cards provide topic areas for quick access.

The second way is to navigate using the report tabs at the bottom of the report.

Enrollment Overview

7,092

Total Students

5,009

Go To Enrollment Views

2,090

Graduate Students


5,875

Full-Time Students

a link to different

Overview ^x	Total Students Summary	New Students Summary	Total Students Trend	New Students Trend	Race/Ethnicity Summary	Race/Ethnicity Trend
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Additional Options

Selecting the ellipsis opens a dropdown with  additional options.

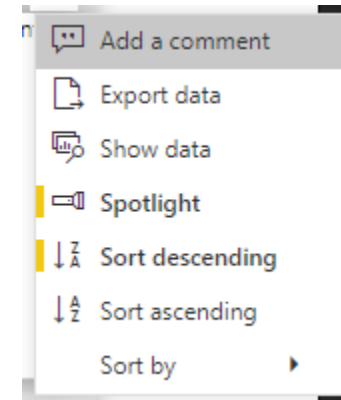
Add a comment: This is a new feature (April 2019). This allows users comment and share on any part of the report. InformSU is currently evaluating this new feature.

Export data: See below

Show data: Opens a visual in focus mode and includes the data table

Sorting Data: User can sort the visuals by variable using the Sort by option and then select descending or ascending order for the data

Users can also use the **back** button to return to the previous page.



Two types of data representations of Term Census Data: Summary Views and Trend Views

Summary Views

The summary views provide an overview of the data by term. Users have the ability to select any term and academic year. These summary data provide a view of the data in detail.

Visualizations, Slicers, and Interactions

Slicers

Slicers here are organized into lists.

Slicers are organized into two rows of tiles. The first row are global slicers. These slicers are present on each summary and trend report page. The slicers are synced across the different tabs in this report. **Synced slicers** are connected to one another so, regardless of which report page a user selects, the same slicer selection will appear.

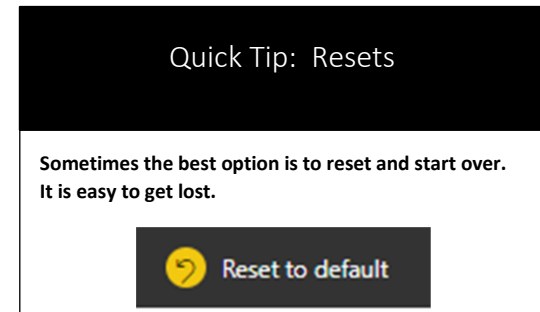
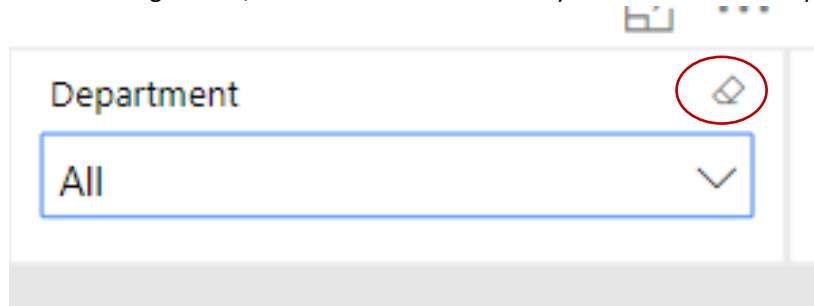
Only one academic year is selectable in the summary views. Academic year is synced across the other summary views but not the trend views (more on this later).

On each page, depending the data presented, are a set of **context slicers**. These **context slicers** are additional ways that users can filter data.

Quick Tip: Interacting Slicers

Slicers dynamically filter other slicers. There is no need apply slicers in any order. The full list of items are available. By selecting another slicer, all other slicers will reflect only data relevant to that selection.

To clear a single slicer, rollover slicer box and a very small eraser button appears. This the clear slicer button.



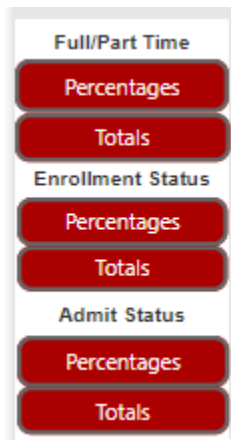
Single select slicers, used here on Academic Year, allow users to select one item at a time. Multi select slicers allow users to select more than value. These slicers are distinguished by the shape of the select button. Single select slicers use radial buttons while the multi select slicers users square checkmarks

Selecting Visuals

On the left of the reports are buttons to switch the data and the visual view of the information on the main visual tile.

Drill Downs

The main tile of the summary reports have the **drill down** feature enabled. The **drill down** allows users to reveal additional data in hierarchical data. Here the data allows users to drill into the visual to see data academic level, school, department, and major/program. A drill down box will appear on each page with drill downs capabilities.



The default setting in Power BI is to turn off drill down. Selecting an element within a visual will highlight that data element across all other visual tiles.

By enabling the drill down, the highlight feature is turned off. Selecting an element will drill into the next level of the hierarchy.

The drill down moves to the next level of the hierarchy based on the selection, it **does not** drill into the specific category selected. For instance, if you click on the representation of undergraduate students into admit status types (first time freshmen, transfers, etc.), the drill down will break undergraduates by admit status into schools/colleges, since that's the next level of the hierarchy. After that, the drill down will go into departments in a particular school, followed by programs/majors.





Enabling drill down

To enable drill down select the main visualization tile and a drill down button menu will appear.

When drilling down into a group with a large number of categories, majors for instance, it is recommended to use the slicers first to limit the visual to a school or a small set of departments.

Drill down menu



Button	Icon	Description
Drill Up		Move up one level of the hierarchy
Drill Mode On/Off		Toggle Drill Mode on and off
Go To Next Level of Hierarchy		Move down one level of the hierarchy
Expand all down one level of the hierarchy		Moves down one level of the hierarchy. Record labels are maintained

Filtered Drill Down vs. All Drill Down

The visual will provide different details depending on how the user drill down into the data.

Filtered drill downs: If a user select a data element within a visual, they will move to the next level of hierarchy while filtering into that selected value.

All Drill Down: If a user uses the Go To Next Level of the Hierarchy option, the visual moves to the next level of the hierarchy without filtering any data.

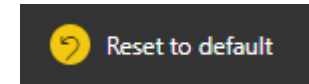
Filtered Views

One of the challenges in Power BI is understanding if a visual is filtered. From slicers, cross-highlighting data from another visual, and drill downs, it is easy to lose track of exactly what is being presented on a report.

Filtered icon



To address this issue each report has a small tile indicating if the data is unfiltered or filtered. Rolling over the tile will provides users an option to reset the visual to the default view.



Resetting Visuals

To reset to the default view, select Reset to default in the ribbon

Trend Views

The trend views provide an overview of the data over time. Users have the ability to select any term group and any range academic years from 2008—9 onward. You can also select any or all of the terms to compare across These trend data provide a view of how data change over time.

Visualizations, Slicers, and Interactions

Slicers

Slicers function in the same way here as they do with the summary view. The only exception is the academic year slicer. For trend views, multiple academic years can be selected.

Selecting Visuals

On the left of the reports are buttons to switch the data and the visual view of the information on the main visual tile.

Exporting Data

Export data

Which data would you like to export?

- ☒ Summarized data
☐ Underlying data

File format:

.xlsx (Excel)

- ① Data exports with all applied filters.
① For large data models, only a limited number of rows can be exported. [Learn more](#)

Export

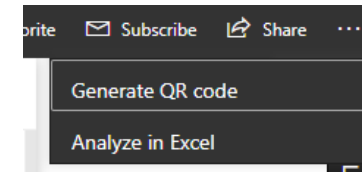
Cancel

x

Power BI enables users to export the underlying data in two ways.

Export Data within a visual is a quick to extract the underlying, summarized data used to create a visual. The data are exported into either an Excel file along with the slicers applied or a Comma Separated Value (CSV) file. There is currently no way to export the visual to Excel.

The **Analyze in Excel** option downloads an Open Database Connectivity (ODBC) linked excel file. An ODBC connection is a Microsoft interface that allows applications to access data in database management systems using SQL as a standard for accessing the data. This option will link an excel file to the Power BI data model. Users can then use Power



Quick Tip: Export to .xlsx (Excel)

Exporting to .xlsx (Excel) will also export the applied filters to the data. This information is critical for troubleshooting data issues and replicating logic. Use this option to replicate previous data extracts.

Last updated: January 31, 2020

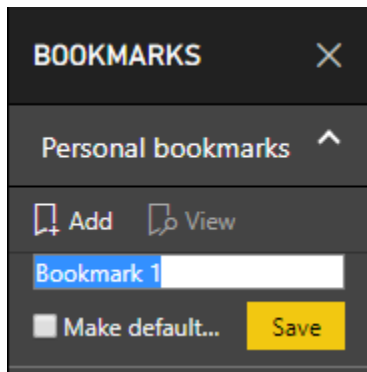
Pivot Tables to build their own tables and views within Excel. Only fields available in the data model will appear in the excel file. Updates to the data model will appear within Excel file when the file connection refreshes.

Personal Bookmarks

Bookmarks are the way to save a view in Power BI. In the Power BI App Space, users can define **Personal Bookmarks**. Personal Bookmarks save the view exactly how the user has defined. These provide a quick way to return to interesting insight or a commonly used view of the data.

Quick Tip: Name Your Bookmark

Bookmarks are users best way to save views. Because bookmarks save the visuals exactly on user selection and are page specific, it is *strongly recommended* to clearly name the bookmarks.



The bookmarks are associated with each page of the report and can be used to navigate to different visualizations. These bookmarks can be used to navigate around the report during a presentation or create a custom ordering of the visualizations.

The Personal Bookmarks are only visible to each user.

When a report is updated with updates or changes, Personal Bookmarks will remain. However, if an element saved in the bookmark is removed or changed, the bookmark may not render the visualization.

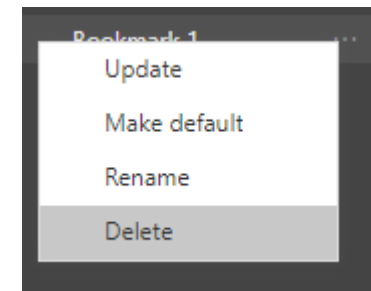
Managing Personal Bookmarks

To **update** Personal Bookmarks, select the ellipsis and select update. Updating a bookmark will overwrite the bookmark to current view. Use this option to make adjustments and changes to an existing bookmark.

To **delete** Personal Bookmark, select the ellipsis and select delete.

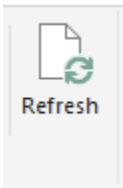
Default Personal Bookmarks

Use the **Make Default View** option to set the book as the default view of the data when opening report.



Power BI Desktop connection

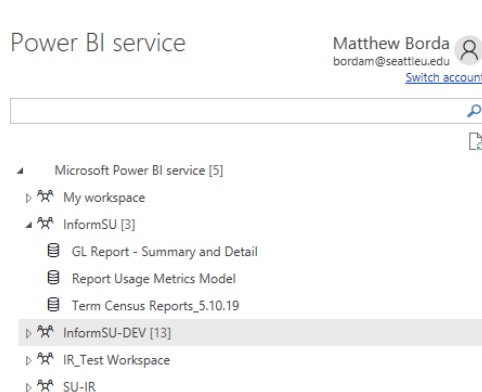
The workspace does not allow users to made edits to the report or build custom visualizations. The data are available to connect to a live excel file, see Analyze in Excel above, or through the Power BI desktop.



These data connection will connect the Power BI data model. Changes or updates to the models will also appear in the connected versions when the user **Refreshes** the data.

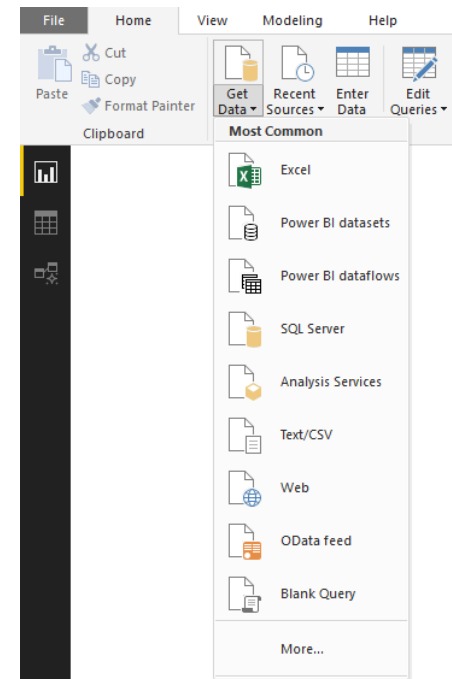
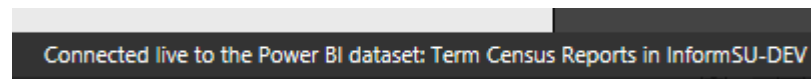
This connection method does not allow users to integrate additional data into the model.

To get data in Power BI, select **Power BI datasets** from the **Get Data** on the home tab of the ribbon.



Next, users will see a list of workspaces. Select the InformSU workspace and the name of the report to connect to the data.

Power BI will automatically connect to the data. Once the connection is made, save the file and the .pbix file will retain that data connection. A confirmation will appear at the bottom of the report page.



Resources

Glossary and Release Notes

The Glossary and Release Notes page comprises a table with the variable definitions for all the fields contained within the data model. There may be some measures created within Power BI that do not get directly included in the report.

The release notes allows users to see when the last release of data was as well as some brief notes on changes made on the report.

InformSU Resources

InformSU: <https://www.seattleu.edu/its/informsu/>

Power BI Seattle University FAQ: <https://www.seattleu.edu/its/informsu/about-power-bi/>

Project Updates and Timeline: <https://www.seattleu.edu/its/informsu/project-updates-and-timeline/>

Microsoft Resources

Learn Power BI: <https://powerbi.microsoft.com/en-us/learning/> or <https://docs.microsoft.com/en-us/power-bi/guided-learning/>

Power BI Documentation: <https://docs.microsoft.com/en-us/power-bi/#pivot=home&panel=home-all>