

Getting up and running with custom peer reports using IPEDS data with SQL, R and LaTeX

This is a brief tutorial on how to get set-up to run custom IPEDS peer reports. Running a report is quick and efficient after a little bit of time is dedicated towards downloading and installing the needed software. All of the software included is completely free and open-source. The only cost to you is your time used to download it, which should not be very much.

An optional aspect that I have included is to check out the hexadecimal color picker. This is just a website, not a download. It can be useful for customizing the colors used for the graphs in your peer reports. The default is set to the hexadecimal colors for the University of Nevada, Las Vegas (UNLV). You can check with the marketing department of your institution to match your brand image or you can change the colors to whatever you like.

If you or your colleagues have any questions, please contact me, Shiloh Bradley, at shiloh.bradley@unlv.edu. My RScripts can be downloaded from my [GitHub](#).

For aesthetics: [Hexadecimal color picker](#)

Download IPEDS data [here](#): 2016-17 Access database was used for the demonstration

Download and install the following:

[ODBC](#) (Used to connect to Microsoft Access databases)

1. Should download automatically
 - a. If not, click “click here to download manually”
2. Installation instructions are available from Microsoft

[MiKTeX](#) (A typesetting system - specifically for Windows)

1. Select “Net Installer”
2. You will notice that there are two. Choose the one that has “File name: setup-2.9.6850-x64.exe”
3. Click “Download”
4. Follow the installation instructions

[R](#) (statistical programming language)

1. Click “Download R for Windows”
2. Click “Install R for the first time”.
3. Go under the section “Other builds” and select “Previous releases”
4. Select “R 3.4.4 (March, 2018)”
5. Click “Download R 3.4.4 for Windows”

[RStudio](#) (IDE for running R)

1. Make sure you have successfully installed R before continuing with this
2. Select “Download” under RStudio Desktop - Open Source License
3. Follow the installation instruction

How to customize the reports for yourself:

main.Rmd

Lines 2-5

1. Rename the report and the author to match your institution and department

```
1 ---
2 title: "IPEDS Peer Report 2016-2017"
3 author:
4   - "Office of Decision Support"
5   - "University of Nevada, Las Vegas"
6 date: "`r Sys.Date()`"
```

Line 36

1. Replace the hexadecimal colors to fit your institution's brand image
2. Replace #B10202 with the color that you want your institution to be. Currently, #B10202 codes for scarlet.
3. Replace #666666 with the color that you want your peer institutions to be. Currently, #666666 codes for grey.

```
35 ## Aesthetics
36 cols <- c("#B10202", rep("#666666", length(id_vec)-1))
37 names(cols) <- as.character(report_list[[2]]$Institution)
38
```

queries.R

Line 7

1. Set the working directory to the path for where your Access database is stored

```
7 ## Set working directory -----
8 setwd("C:/Users/iadsshared/Desktop/autoreports/")
```

Line 36

1. Change "IPEDS201617.accdb" to the name of the Access database that you are using, if it is different.

```
34 ## Load sources -----
35 ## Locate Access file
36 ipeds <- odbcConnectAccess2007("IPEDS201617.accdb")
```

report_peers.csv

1. Change 182281 to your IPEDS UnitID. Make sure that you always keep yours as the first.
2. Change the rest of the UnitID's in lines 3-10
3. You can add as many or as few peers as you want. More than eight might become cumbersome, but you can do it.

```
1 UNITID
2 182281
3 225511
4 145600
5 229115
6 234030
7 227216
8 139940
9 187985
10 240453
```

report_metrics.csv

1. *Report_Name* is what you want the name of your graphs will be.
2. *Metric* is the variable that you want to use for comparison. Some metrics may not be available for all institutions and years.
3. *Table* is which table the variable comes from.
 - a. Make sure to check the table names when changing which Access database you are using. HD2016 could become HD2017 for the next year of data.
4. You can add as many "Metrics" as you want to make the peer report as complex as you want. These are just the ones that I picked because I felt they were common comparisons.
5. The first row after the header must always be "Institution Names", "INSTNM", and "HD2016" (where 2016 can change to various years depending on the year of the report you want to use).

	Report_Name	Metric	Table
2	Institution Names	INSTNM	HD2016
3	Retention Rate	RET_PCF	EF2016D
4	Graduation Rate	GRRTTOT	DRVGR2016
5	ACT Composite 25th Percentile	ACTCM25	ADM2016
6	ACT Composite 75th Percentile	ACTCM75	ADM2016
7	Undergraduate FTE	EFUGFT	DRVEF2016

Once you have all these files updated and saved, go back to main.Rmd and click “Knit”. Your PDF document will be output. If you want to make multiple versions, make sure you rename the PDF. Each iteration will come out as “main.PDF” and will overwrite previous versions of the same name.

The more R and SQL you learn, the more you can customize these reports to your liking. For example, changing the plots to line graphs instead of bars or being able to enter your own SQL queries instead of using the function. Please let me know if you have any questions! Good luck and happy reporting!