

Motley Crews: Collaborating with Quarto

Our Motley Crew



Our Motley Crew

Historian



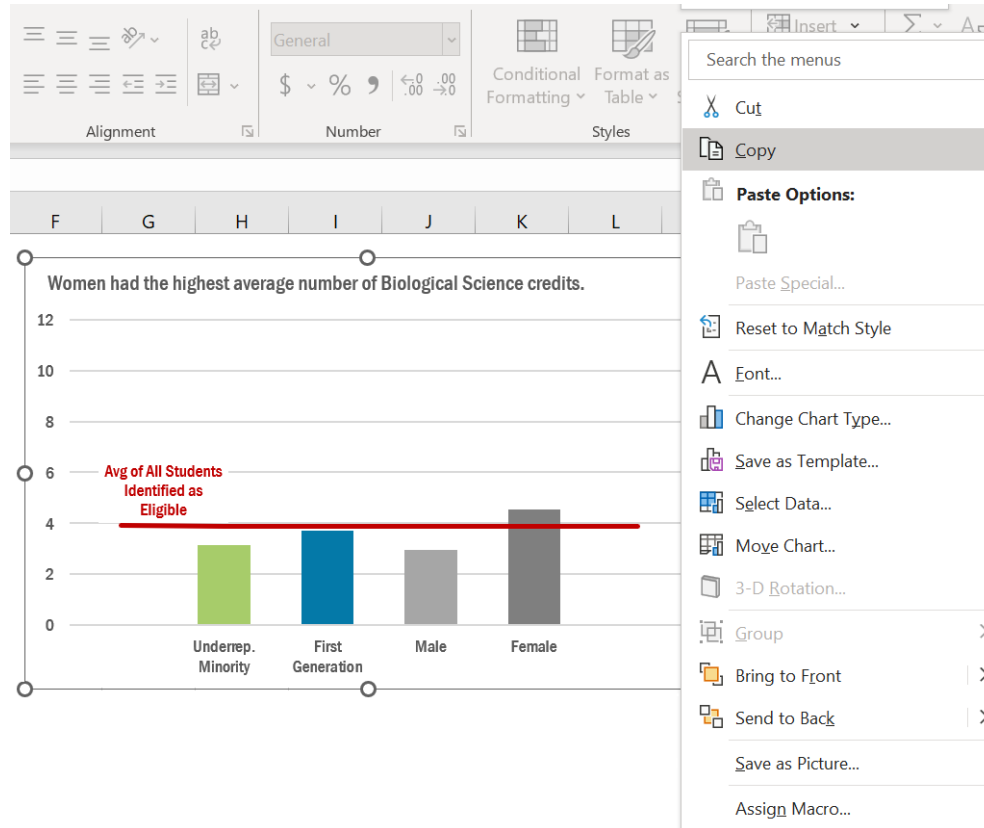
Political Scientist



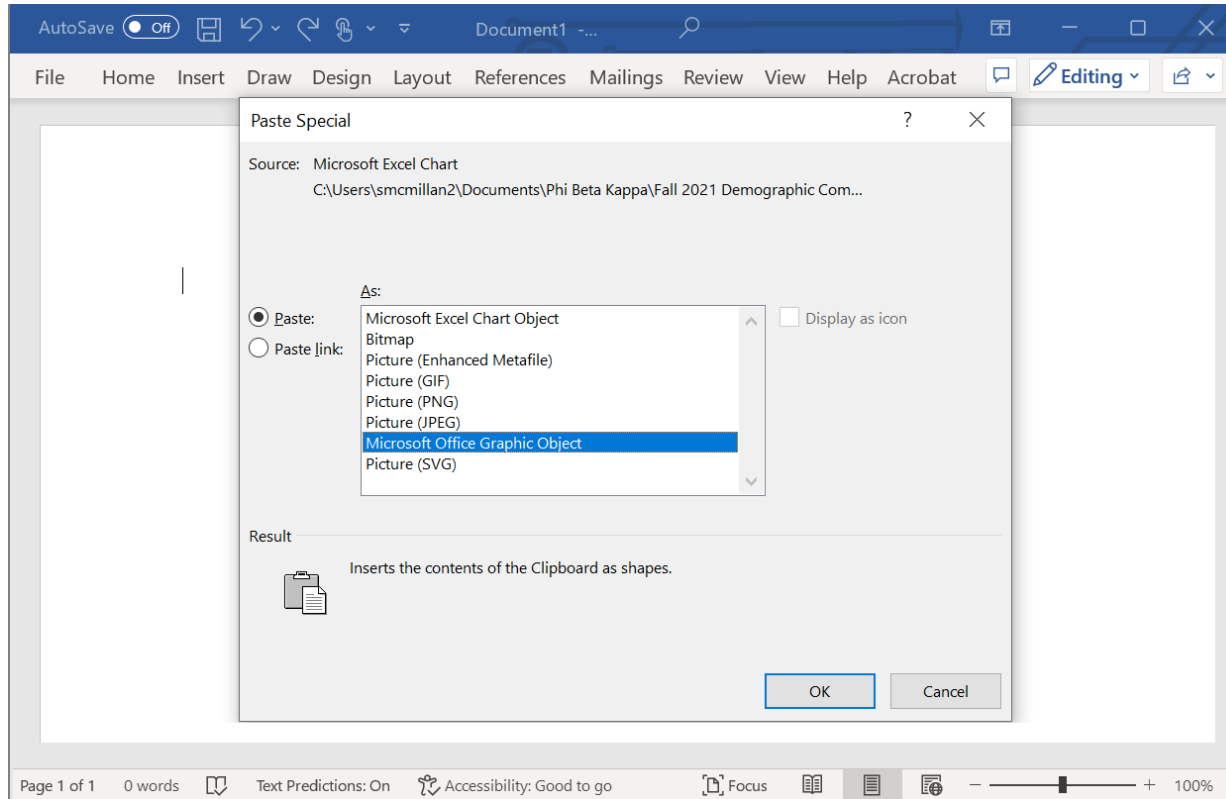
Philosopher



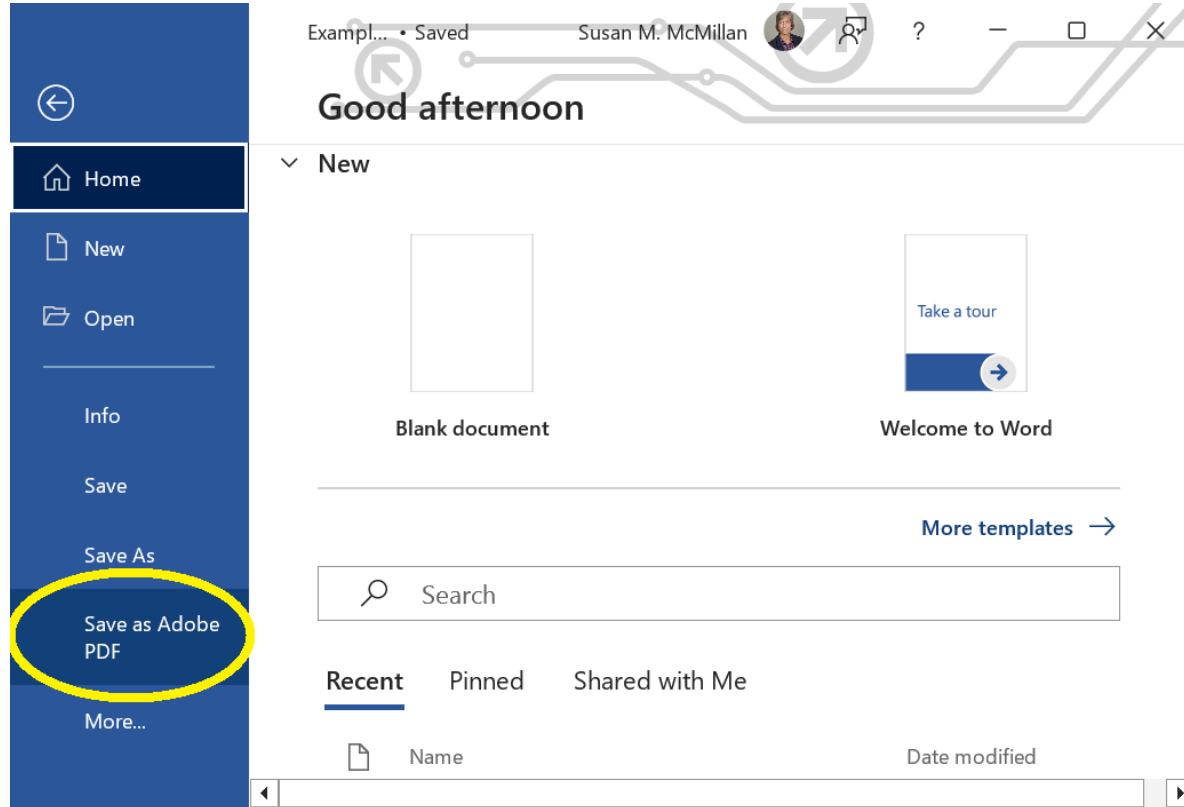
Problem: Fragmented Workflows



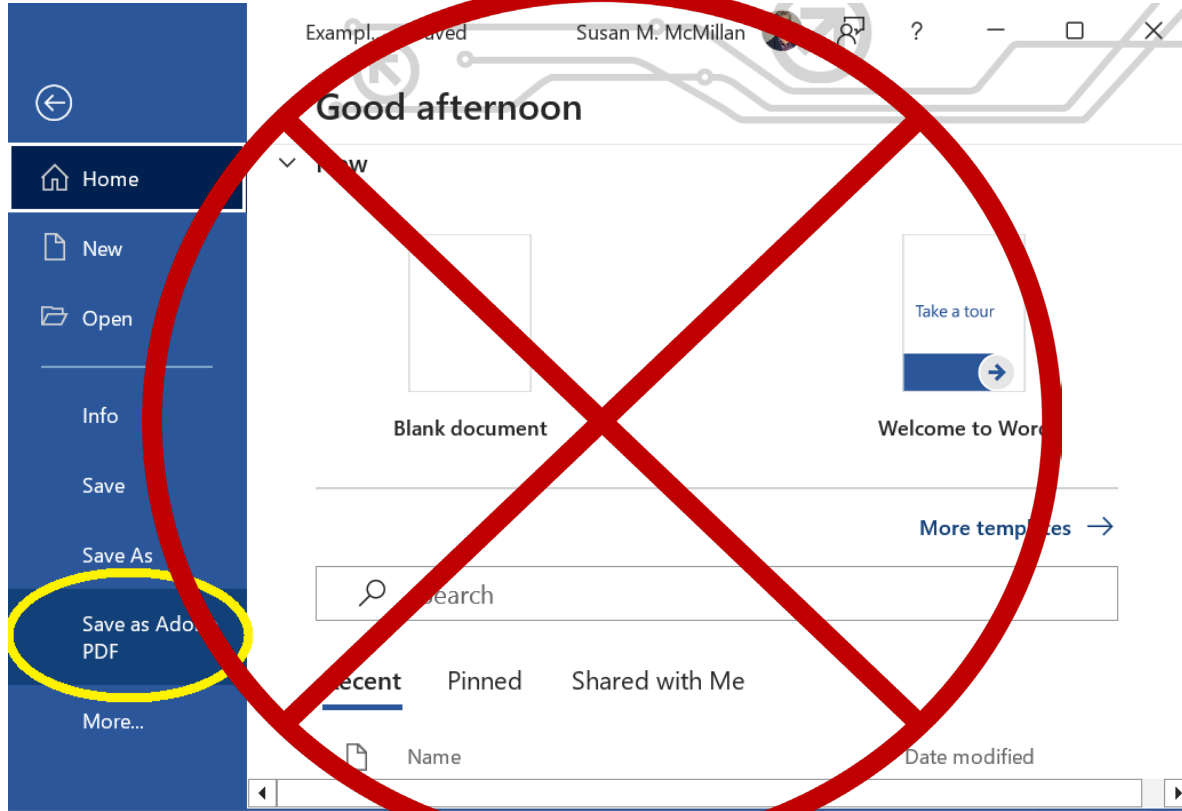
Problem: Fragmented Workflows



Problem: Fragmented Workflows



Problem: Fragmented Workflows



What We Learned

- Form matters
- Reduced barriers for “non-technical” people
- Enhanced accuracy

Form Matters



Photo: [Chris Rycroft](#) | Creative Commons

Form Follows Function



Photo: JW Taylor | [Library of Congress](#)

Form *is* Function



Photo: [Ben Schumin](#) | Creative Commons

Embrace Conway's Law



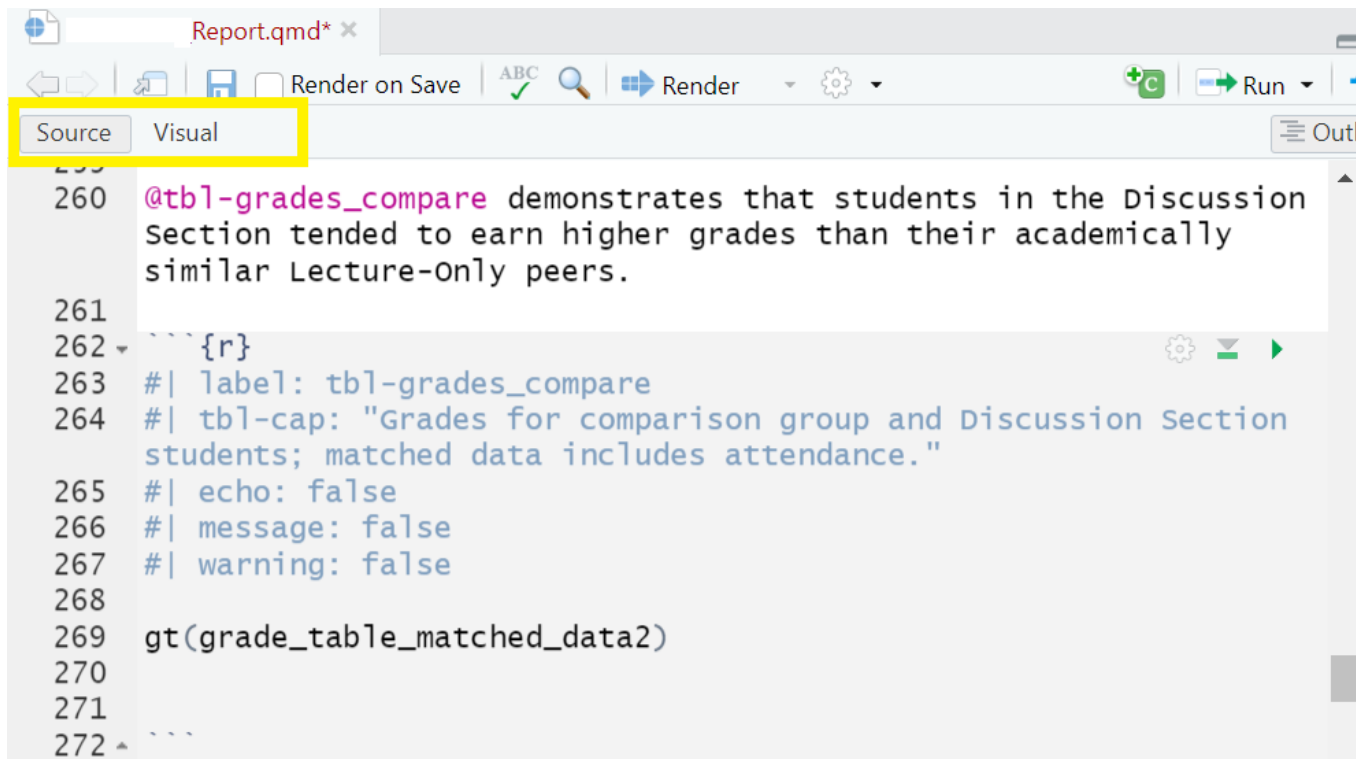
Photo: [Chris Rycroft](#) | Creative Commons

Solution: Unified Workflow



- Query
 - Process
 - Analyze
 - Visualize
 - Write
- Version Control
 - Online Publication

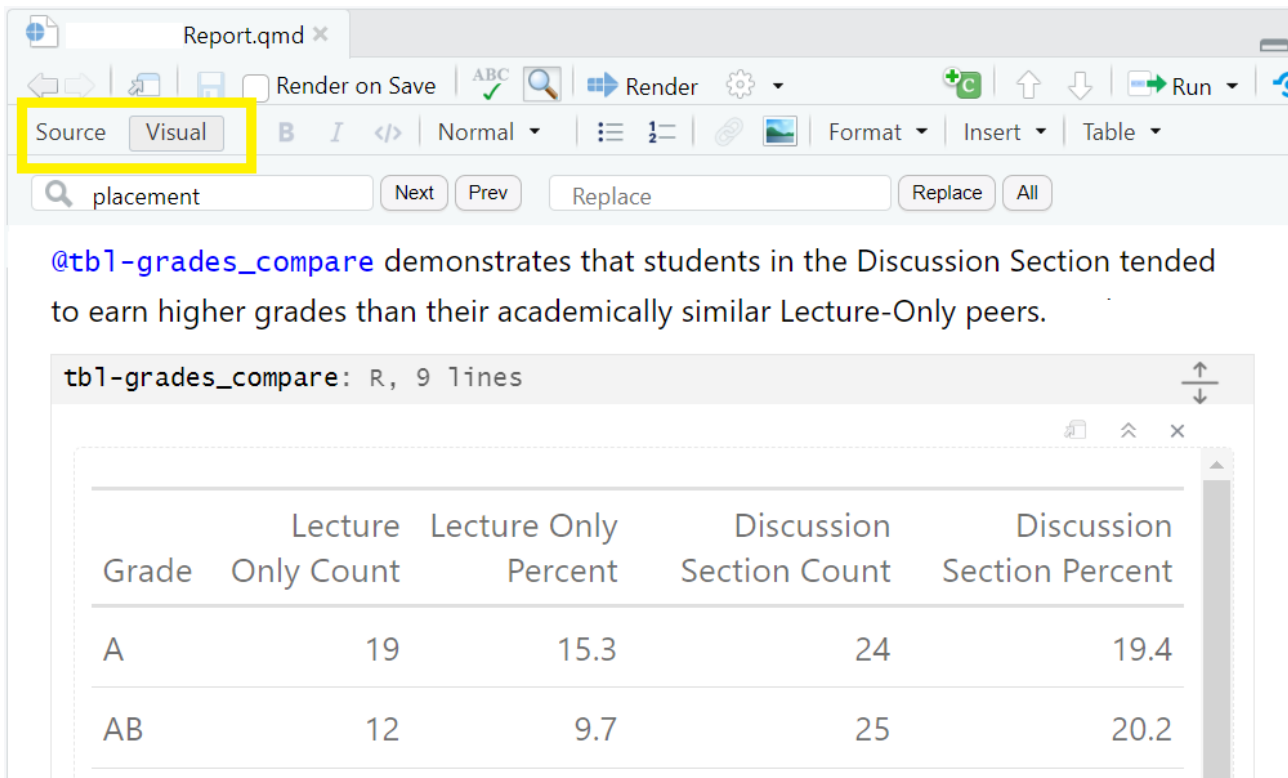
Quarto Reduces Technical Barriers



The screenshot shows the Quarto editor interface. At the top, there's a toolbar with icons for navigation, saving, and rendering. Below the toolbar, there are two tabs: 'Source' and 'Visual'. The 'Source' tab is currently selected and highlighted with a yellow border. The main area displays a report document titled 'Report.qmd'. The document contains a table with one row. The table is created using the `tbl-grades_compare` function. The table has a header row with the label 'tbl-grades_compare' and a caption 'Grades for comparison group and Discussion Section students; matched data includes attendance.' The table body contains the output of the `gt(grade_table_matched_data2)` function. The table is rendered as a single row with the text '@tbl-grades_compare demonstrates that students in the Discussion Section tended to earn higher grades than their academically similar Lecture-Only peers.'

```
260 @tbl-grades_compare demonstrates that students in the Discussion
261 Section tended to earn higher grades than their academically
262 similar Lecture-Only peers.
263
264 {r}
265 #| label: tbl-grades_compare
266 #| tbl-cap: "Grades for comparison group and Discussion Section
267 students; matched data includes attendance."
268 #| echo: false
269 #| message: false
270 #| warning: false
271
272 gt(grade_table_matched_data2)
```

Quarto Reduces Technical Barriers



Report.qmd

Render on Save ☒ Render ☐ Run

Source Visual **B** *I* `</>` Normal Format Table

placement

[@tbl-grades_compare](#) demonstrates that students in the Discussion Section tended to earn higher grades than their academically similar Lecture-Only peers.

tbl-grades_compare: R, 9 lines

Grade	Lecture Only Count	Lecture Only Percent	Discussion Section Count	Discussion Section Percent
A	19	15.3	24	19.4
AB	12	9.7	25	20.2

Publish Web Pages via GitHub/GitLab



Background

- 1 L&S Enrollment Trends
- 2 Graduation Trends
- 3 Time to Degree
- 4 Quality of Work
- 5 Appendix A: Degree Awards by Major
- 6 Appendix B: Tabular Results
- 7 Appendix C: Technical Details

L&S DEI Metrics Report, 2014–2023

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Background

In the fall of 2020, the Dean of the College of Letters & Science, Eric Wilcots, requested a report that could be used to monitor how well diversity, equity and inclusion (DEI) goals were being met. The underlying analytic question was whether there had been gaps in the academic outcomes of Letters & Science (L&S) undergraduate degree recipients when grouped by Underrepresented Student of Color (URSoC) status. The report identified a set of indicators that could be used to monitor progress toward DEI goals:

- URSoC as a percentage of all L&S undergraduates
- URSoC as a percentage of all L&S degree award recipients
- Percentage of URSoC who graduated with at least one STEM major
- Time to degree
- Quality of work at time of degree

Control Report Access



GitLab Enterprise Edition

NetID sign in

☐ Remember me

[Forgot your password?](#)

Sign in

Users of UW Madison use the UW-Madison NetID button to log in via Shibboleth

<https://kb.wisc.edu/shared-tools/>

Sign in with

 UW-Madison NetID

☐ Remember me

Publish Updates

LS Academic Information Management > **AD-HOC-Data**



Corrected typo.

Susan M. McMillan authored 8 months ago

master ▾

AD-HOC-Data / CAE_SCE_Demographic_Report

/

+ ▾

Improved Report Functionality

Table A: Count of L&S Degree Recipients by Major

Academic Years 2014–2023

Major ↕	STEM ↕	↕ Grad Count ↕	↕ Female Count ↕	Female Percent
AfrCulStds	N	26	18	69.2%
AfricnAmer	N	42	27	64.3%
AMEP	Y	153	17	11.1%
Anthro	N	388	282	72.7%

Accuracy

We still faced problems of inaccuracy.

Accuracy

Count of Comp. Sci. majors in 2019-2020 Academic Year

n = 2266

n = 2389

Accuracy

Term (Semester) Data is **Coded**

“1204” is Spring, 2020

Accuracy

Century: 0 = 20th, 1 = 21st

“**1204**” is Spring, 2020

Accuracy

Year: Last 2 digits

“**1204**” is Spring, 2020

Accuracy

Semester: 2 = Fall, 4 = Spring, 6 = Summer

“120**4**” is Spring, 2020

Accuracy

Ambiguity in “Academic Year”

1196: Summer, 2019

1202: Fall, 2019

1204: Spring, 2020

1206: Summer, 2020

Accuracy

An Academic Year, is Summer, Fall, Spring.

1196: Summer, 2019

1202: Fall, 2019

1204: Spring, 2020

1206: Summer, 2020

Accuracy

Mike thought it was Fall, Spring, Summer.

1196: Summer, 2019

1202: Fall, 2019

1204: Spring, 2020

1206: Summer, 2020

Packages

Packages to the rescue!

- If you can write a function, you can write a package.
- Shared via GitHub/GitLab for easy install/updates.

Packages: Sharing and Documenting

```
> AIMutils::acad.year
function (Term, TermType)
{
  Data <- data.frame(Term, stringsAsFactors = FALSE)
  if (TermType == "SIS") {
    Data$cent <- substr(Data$Term, 1, 1)
    Data$year <- substr(Data$Term, 2, 3)
    Data$semester <- substr(Data$Term, 4, 4)
    if (length(Data[which(Data$cent == "0"), ]$cent) > 0) {
      Data[which(Data$cent == "0"), ]$cent <- "19"
    }
    if (length(Data[which(Data$cent == "1"), ]$cent) > 0) {
      Data[which(Data$cent == "1"), ]$cent <- "20"
    }
    Data$acadYear <- paste(Data$cent, Data$year, sep = "")
    if (length(Data[which(Data$semester == "6"), ]$cent) >
        0) {
      Data[which(Data$semester == "6"), ]$acadYear <- as.integer(
        "6") 1$acadYear) + 1
    }
  }
}
```

Packages: Sharing and Documenting

R: Convert Term to Academic Year ▾ Find in Topic

acad.year {AIMutils} R Documentation

Convert Term to Academic Year

Description

Returns a vector of Academic Years from a vector of either SIS Terms or DARS Terms.

Usage

```
acad.year(Term, TermType)
```

Arguments

Term Character vector containing SIS or DARS terms

TermType The type of terms input: "SIS" or "DARS"

Details

This function returns the Academic Year (term order is Summer, Fall, Spring) from either SIS formatted terms or DARS formatted terms. This is formatted as the full year, without the Semester. For instance, 2019.

Examples

[Run examples](#)

```
acad.year(c("1182", "1094", "1176", "0972"), "SIS")
```

[Package *AIMutils* version 2023.2.1 [Index](#)]

Packages: Sharing and Documenting



Documentation for package 'AIMutils' version 2023.2.1

- [DESCRIPTION file](#).

Help Pages

[acad.year](#)

Convert Term to Academic Year

[AIMrupdate](#)

Update R and relevant packages.

[cal.year](#)

Convert Term to Calendar Year

[cal.year.season](#)

Convert Term to Season and Calendar Year

[dars.to.sis](#)

Convert DARS Term to SIS Term

[increment.term](#)

Increment SIS term by one

[open.BadgerAnalytics.connection](#)

Open an BadgerAnalytics connection

[open.DARSP.connection](#)

Open an DARSP connection

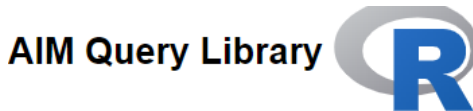
[open.INFOACCESS.connection](#)

Open an INFOACCESS connection

[runAllChunks](#)

Run all r chunks in an rmd or qmd file

Packages: Sharing and Documenting



Documentation for package 'AIMqueries' version 0.1.0

- [DESCRIPTION file](#).

Help Pages

admissions.data.update	Query and update current admissions data for a set of terms
CAMPUS_ID.to.ID	Crosswalk query from SIS CAMPUS_ID to SIS EMPL ID
current.majorcurric.version	Query that returns curricular version information about ugrd students.
curricular.cat	Custom curricular category of a Plan Code.
enrollment.data.update	Query and update current enrollment data for a term
ID.to.CAMPUS_ID	Crosswalk query from SIS EMPL ID to SIS CAMPUS_ID
MATH.requisite	Course and placement requisites of students by MATH course and Term
timetable.data.update	Query and update current timetable data for a term
ugrd.matric.admit.type	Query that returns the admit type for the first term enrolled by a ugrd student.
ugrd.term.count	Query that returns the ugrd term count.

Make *your* motley crew successful.

- Adopt a **unified workflow**
- Draw in non-technical people with:
 - The **RStudio visual editor**
 - Online publication via **GitHub/GitLab**.
- Create accurate, consistent, and documented processes with **packages**.