

Practice: Analyzing change

College Navigator from the National Center for Education Statistics is a consumer service that aims at providing users with information on colleges and universities from everything on tuition, estimated student expenses, enrollment, faculty, athletics and more. Use the following guide to download information that you can practice analyzing with Excel.

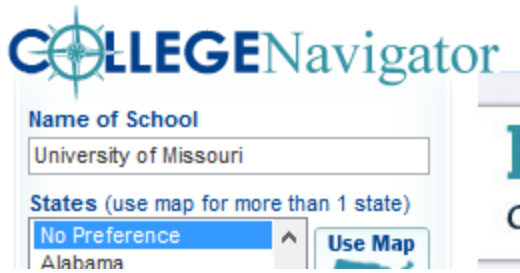
First, go to nces.ed.gov/collegenavigator/ and get familiar with the interface:

Figure 1

The screenshot shows the College Navigator website interface. At the top, there is a navigation bar for the National Center for Education Statistics (IES) with a search bar. Below this is a secondary navigation menu with categories like 'Publications & Products', 'Surveys & Programs', 'Data & Tools', 'Fast Facts', 'School Search', 'News & Events', and 'About Us'. The main content area features the 'COLLEGE Navigator' logo and a search form with various filters: 'Name of School', 'States' (with a 'Use Map' button), 'ZIP Code', 'Miles from', 'Programs/Majors', 'Level of Award', and 'Institution Type'. A 'Show Results' button is located at the bottom of the search form. To the right of the search form is a large banner image of a modern building with the text 'Find the right college for you' and a 'Guide Me' button. Below the banner is a list of search tips and additional resources, including links to 'College Affordability and Transparency Center', 'Financial Aid', and 'Postsecondary Education Outcome Measures'.

Notice that you can filter your search by a number of factors including school name, ZIP Code, state and more. We're going to use the University of Missouri in our example, but for this exercise, just type in your school's name as shown in Figure2 below.

Figure 2



Then click “Show results.”

Figure 3


Sort by: Name City State		6 Results
Lincoln University Jefferson City, Missouri	Add to Favorites	
Missouri University of Science and Technology Rolla, Missouri	Add to Favorites	
University of Central Missouri Warrensburg, Missouri	Add to Favorites	
University of Missouri-Columbia Columbia, Missouri	Add to Favorites	
University of Missouri-Kansas City Kansas City, Missouri	Add to Favorites	
University of Missouri-St Louis Saint Louis, Missouri	Add to Favorites	

Showing All Results

Figure 3 includes all of the results for “University of Missouri.” We might come back and grab another, but for now we’ll select “University of Missouri-Columbia.”

Figure 4

University of Missouri-Columbia
 105 Jesse Hall, Columbia, Missouri 65211



General information: (573) 882-2121
Website: missouri.edu/
Type: 4-year, Public
Awards offered: Bachelor's degree
 Postbaccalaureate certificate
 Master's degree
 Post-master's certificate
 Doctor's degree - research/scholarship
 Doctor's degree - professional practice

Campus setting: City: Midsize
Campus housing: Yes
Student population: 34,704 (26,960 undergraduate)
Student-to-faculty ratio: 20 to 1

[Expand All](#) | [Collapse All](#)

- [+ GENERAL INFORMATION](#)
- [+ TUITION, FEES, AND ESTIMATED STUDENT EXPENSES](#)
- [+ FINANCIAL AID](#)
- [+ NET PRICE](#)
- [+ ENROLLMENT](#)
- [+ ADMISSIONS](#)
- [+ RETENTION AND GRADUATION RATES](#)
- [+ PROGRAMS/MAJORS](#)
- [+ VARSITY ATHLETIC TEAMS](#)
- [+ ACCREDITATION](#)
- [+ CAMPUS SECURITY](#)
- [+ COHORT DEFAULT RATES](#)

Basic information is displayed in the result, but you can click on any of the “+” signs to find more information on a variety of topics. For this exercise, expand the “Tuition, fees, and estimated student expenses” category.

Figure 5

ESTIMATED EXPENSES FOR FULL-TIME BEGINNING UNDERGRADUATE STUDENTS

▪ Beginning students are those who are entering postsecondary education for the first time.

ESTIMATED EXPENSES FOR ACADEMIC YEAR	2010-2011	2011-2012	2012-2013	2013-2014	% CHANGE 2012-2013 TO 2013-2014
Tuition and fees					
In-state	\$8,501	\$8,989	\$9,257	\$9,415	1.7%
Out-of-state	\$20,516	\$21,784	\$23,366	\$23,764	1.7%
Books and supplies	\$1,070	\$1,086	\$930	\$946	1.7%
Living arrangement					
On Campus					
Room and board	\$8,607	\$8,643	\$8,944	\$9,286	3.8%
Other	\$3,110	\$3,156	\$3,256	\$3,296	1.2%
TOTAL EXPENSES					
2010-2011 2011-2012 2012-2013 2013-2014 % CHANGE 2012-2013 TO 2013-2014					
In-state					
On Campus	\$21,288	\$21,874	\$22,387	\$22,943	2.5%
Out-of-state					
On Campus	\$33,303	\$34,669	\$36,496	\$37,292	2.2%

The expanded category shows estimated expenses for full-time beginning undergraduate students based on in-state, out-of-state and living arrangement. We’re only going to use part of this data. In Figure 6, we’ve highlighted the part of the data we’d like you to copy (for your respective school) and paste into an Excel file.

Figure 6

TUITION, FEES, AND ESTIMATED STUDENT EXPENSES

ESTIMATED EXPENSES FOR FULL-TIME BEGINNING UNDERGRADUATE STUDENTS

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After you've copied and pasted this information into Excel your spreadsheet should look something like Figure 7 below.

Figure 7

	A	B	C	D	E	F
1	Estimated expenses for academic year	2010-2011	2011-2012	2012-2013	2013-2014	% change 2012-2013 to 2013-2014
2	Tuition and fees					
3	In-state	\$8,501	\$8,989	\$9,257	\$9,415	1.70%
4	Out-of-state	\$20,516	\$21,784	\$23,366	\$23,764	1.70%
5	Books and supplies	\$1,070	\$1,086	\$930	\$946	1.70%
6	Living arrangement					
7	On Campus					
8	Room and board	\$8,607	\$8,643	\$8,944	\$9,286	3.80%
9	Other	\$3,110	\$3,156	\$3,256	\$3,296	1.20%
10						

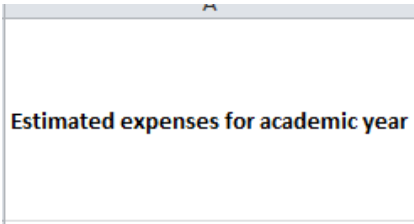
Let's make it look nicer before we go any further.

First, notice that the headings are wrapping. It'd be easier to read if the headings went straight across.

So instead of this:

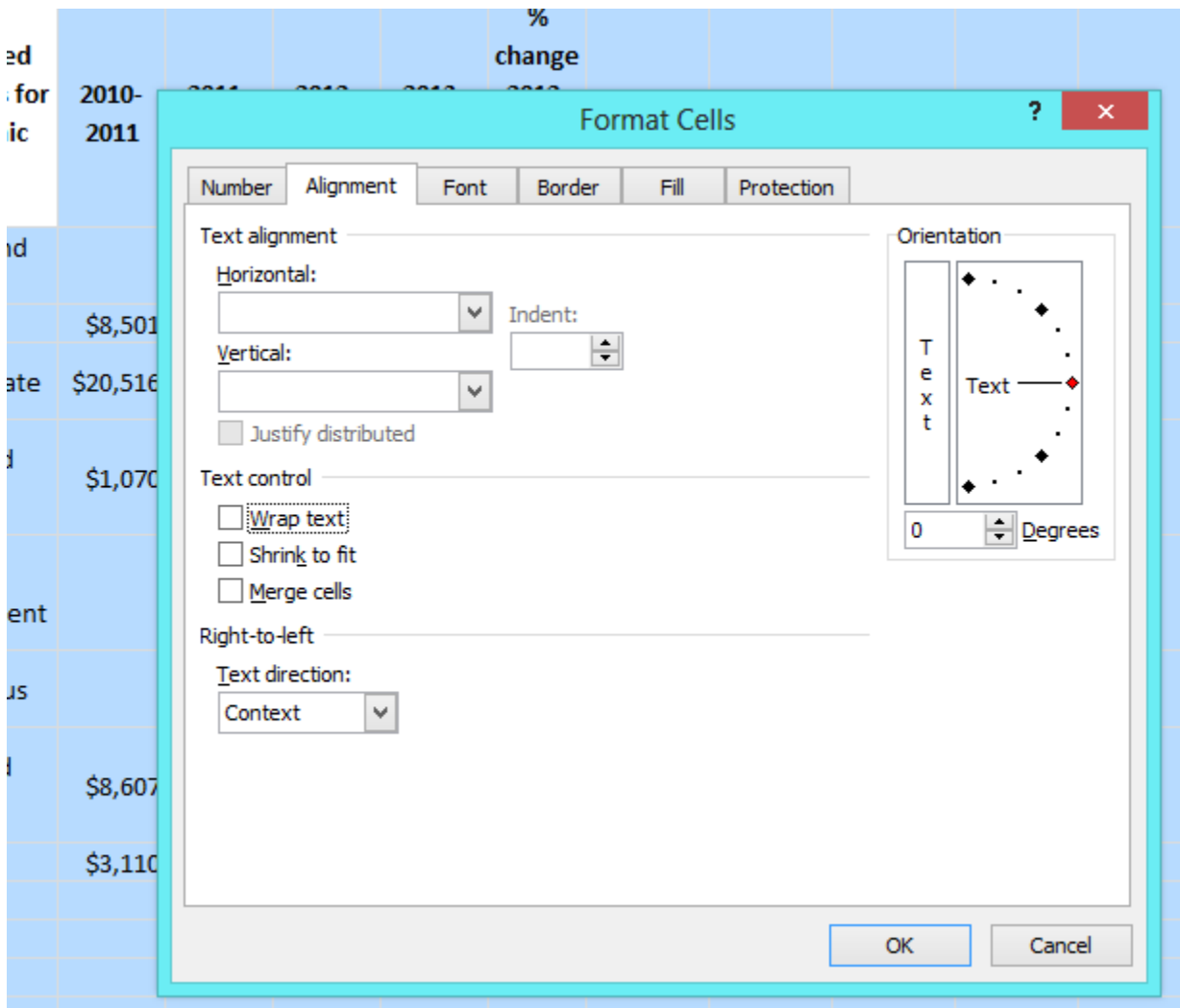
Estimated expenses for academic year

The headings would look like this:



This is a very simple fix. First, click on the empty square just to the left of the “A” for column A and above the “1” for column 1. This will highlight your entire sheet. Next, right-click anywhere on the sheet and select the “Format Cells” option in the dropdown menu. Up to now, we’ve only worked with the “Number” tab. This time, click on the “Alignment” tab. Underneath the “Text control” section, make sure that the boxes next to “Wrap text,” “Shrink to fit” and “Merge cells” are all unchecked. Your window should look like Figure 8. Click OK.

Figure 8



With the entire sheet still highlighted, use the “Column Adjustor” tool (explained in the introduction to Excel) to change the width and height of your columns. Move your cursor anywhere between the column headers and double click. This will find a “best fit” for the column width.

Figure 9

	A	B	C	D	E	F
1	Estimated expenses for academic year	2010-2011	2011-2012	2012-2013	2013-2014	% change 2012-2013 to 2013-2014
2	Tuition and fees					
3	In-state	\$8,501	\$8,989	\$9,257	\$9,415	1.70%
4	Out-of-state	\$20,516	\$21,784	\$23,366	\$23,764	1.70%

Now the data look a bit easier to work with.

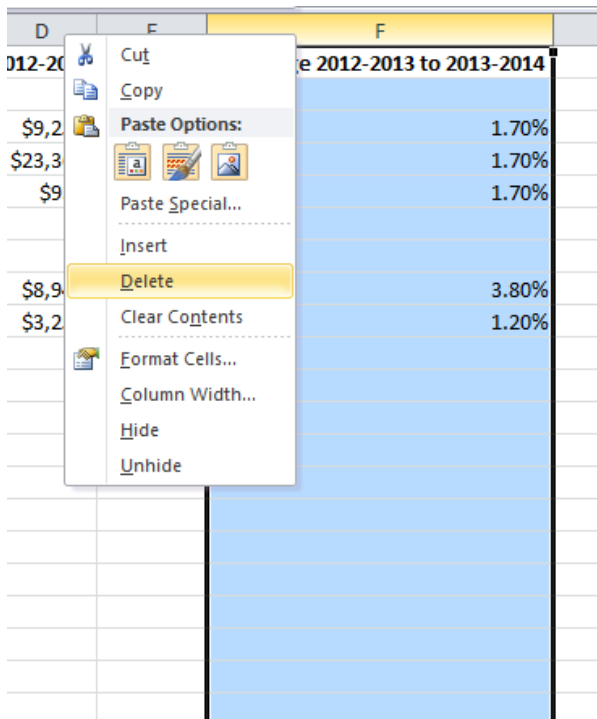
Figure 10

	A	B	C	D	E	F
1	Estimated expenses for academic year	2010-2011	2011-2012	2012-2013	2013-2014	% change 2012-2013 to 2013-2014
2	Tuition and fees					
3	In-state	\$8,501	\$8,989	\$9,257	\$9,415	1.70%
4	Out-of-state	\$20,516	\$21,784	\$23,366	\$23,764	1.70%
5	Books and supplies	\$1,070	\$1,086	\$930	\$946	1.70%
6	Living arrangement					
7	On Campus					
8	Room and board	\$8,607	\$8,643	\$8,944	\$9,286	3.80%
9	Other	\$3,110	\$3,156	\$3,256	\$3,296	1.20%
10						
11						
12						

Notice that there are two sections to this data: “Tuition and fees” and “Living arrangement.” Depending on your school, you may have more than one category under “Living arrangement.” The example shown for the University of Missouri only has on campus living expenses while others include estimated off-campus living expenses as well.

Before you give this to your students to work through, let’s clean it up just a bit more. First, delete column F because we’ll want the students to figure that out themselves. (Remember to delete a column, all you need to do is right-click on the letter of that column and select “Delete.”)

Figure 11



Next, edit the labels to look something like Figure 12 below. All I did was combine the information so we can eventually get rid of additional rows.

Figure 12

A	B
Estimated expenses for academic year	2010-2
Tuition and fees	
In-state tuition and fees	\$8,5
Out-of-state tuition and fees	\$20,5
Books and supplies	\$1,0
Living arrangement	
On Campus	
Room and board living	\$8,6
Other living	\$3,1

Lastly, delete the “empty” “Tuition and fees,” “Living arrangement” and “On Campus” rows to tighten up the data. To delete a row, simply right-click on the row number and select “Delete.”

Your end result should look something like figure 13 below:

Figure 13

A	B	C	D	E
Estimated expenses for academic year	2010-2011	2011-2012	2012-2013	2013-2014
In-state tuition and fees	\$8,501	\$8,989	\$9,257	\$9,415
Out-of-state tuition and fees	\$20,516	\$21,784	\$23,366	\$23,764
Books and supplies	\$1,070	\$1,086	\$930	\$946
Room and board living	\$8,607	\$8,643	\$8,944	\$9,286
Other living	\$3,110	\$3,156	\$3,256	\$3,296

Notice that we've actually got two different categories of expenses. One set is for in-state students and the other is for out-of-state students. If you added up all of the values in column B for 2010-2011 it doesn't show the total estimated cost for one student because it includes both the tuition values for in- and out-of-state students. You could write a formula using simple addition instead of the SUM function and range of data to find one total. For example, to find the total for in-state students you could use this formula, as shown in Figure 14: = b2+b4+b5+b6

Figure 14

A	B	C	D
Estimated expenses for academic year	2010-2011	2011-2012	2012-2013
In-state tuition and fees	\$8,501	\$8,989	\$9,257
Out-of-state tuition and fees	\$20,516	\$21,784	\$23,366
Books and supplies	\$1,070	\$1,086	\$930
Room and board living	\$8,607	\$8,643	\$8,944
Other living	\$3,110	\$3,156	\$3,256
In-state total	=B2+B4+B5+B6		
Out-of-state total			

You get the correct answer: \$21,288

You can find the total for out-of-state students by using either of these two formulas:

=SUM(B3:B6)

=B3+B4+B5+B6

Notice in Figure 15 below that the answer for the out-of-state total includes a triangle in the corner of the cell. This is Excel alerting us that there is a possible error because we omitted adjacent cells with numbers (cell B2 in this situation).

Figure 15

	A	B	C
1	Estimated expenses for academic year	2010-2011	2011-2012
2	In-state tuition and fees	\$8,501	\$8,989
3	Out-of-state tuition and fees	\$20,516	\$21,784
4	Books and supplies	\$1,070	\$1,086
5	Room and board living	\$8,607	\$8,643
6	Other living	\$3,110	\$3,156
7			
8	In-state total	\$21,288	
9	Out-of-state total	\$33,303	
10			

Since the answer is correct, this error can be ignored. But keep in mind that formulas refer to cell addresses and not specific numbers. Excel is only as good as our instructions. If you were to sort the data to find the highest estimated expense in the 2010-2011 your answers will then be incorrect. That’s because the formula would still be looking for the sum of the numbers in cells B2 through B6, but those numbers will have changed. Figure 16 below shows what happens.

Figure 16

	A	B	C	D
1	Estimated expenses for academic year	2010-2011	2011-2012	2012-201
2	Out-of-state tuition and fees	\$20,516	\$21,784	\$23,366
3	Room and board living	\$8,607	\$8,643	\$8,944
4	In-state tuition and fees	\$8,501	\$8,989	\$9,257
5	Other living	\$3,110	\$3,156	\$3,256
6	Books and supplies	\$1,070	\$1,086	\$930
7				
8	In-state total	\$33,197		
9	Out-of-state total	\$21,288		
10				
11				

To solve this issue, let’s split the data into two categories: in-state fees and out-of-state fees. Set it up like the sheet shown below:

Figure 17

	A	B	C	D	E	F	G
1	In-state students						
2	Estimated expenses for academic year	2010-2011	2011-2012	2012-2013	2013-2014		
3	In-state tuition and fees	\$8,501	\$8,989	\$9,257	\$9,415		
4	Books and supplies	\$1,070	\$1,086	\$930	\$946		
5	Room and board living	\$8,607	\$8,643	\$8,944	\$9,286		
6	Other living	\$3,110	\$3,156	\$3,256	\$3,296		
7							
8							
9							
10							
11	Out-of-state students						
12	Estimated expenses for academic year	2010-2011	2011-2012	2012-2013	2013-2014		
13	Out-of-state tuition and fees	\$20,516	\$21,784	\$23,366	\$23,764		
14	Books and supplies	\$1,070	\$1,086	\$930	\$946		
15	Room and board living	\$8,607	\$8,643	\$8,944	\$9,286		
16	Other living	\$3,110	\$3,156	\$3,256	\$3,296		
17							
18							
19							

Use this spreadsheet you've just created to find the total amounts, change and percent change for different time periods and categories. Answer the questions below.

Questions

Analyze the estimated tuition, fees and living expenses data for students to help you answer the questions below.

- 1) How much would an in-state student expect to pay for the 2013-2014 school year?
- 2) How much would an out-of-state student expect to pay for the 2013-2014 school year?
- 3) How much more did out-of-students pay in 2013-2014 than in-state students?
- 4) Which category increased the most from the 2010-2011 to the 2013-2014 school years? Raw change? Percent change?
- 5) Write a lead for a story based on your analysis.
- 6) What other information and/or sources would help you finish this story?

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