# ANALYZING AND INTERPRETING COURSE GRADES AND ASSESSMENT DATA

Session 1: Preparing Data for Analyses

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# UPCOMING SESSIONS

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**Session 1: Preparing Data for Analyses**

Session 2: Summarizing and Visualizing Data

Session 3: Using Data to Make Decisions

# OBJECTIVES

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- At the conclusion of this presentation, you should be able to:
  1. Export course grades and assessment data from myCourses.
  2. Perform data-cleaning operations in preparation for analysis.
  3. Import course grades into SPSS for analysis
- Slides for today are available here:
  `http://bitly.com/celt_slides`

# MESSY DATA

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- Most raw data files are “messy” and in need of cleaning before we can perform any meaningful operations
- Data cleaning is a somewhat inexact process
- Since most data are unique, the cleaning process is also a unique one
- However, there are some common issues

# COMMON ISSUES IN CLEANING DATA

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- Renaming variables
- Creating variables
- Dealing with missing data
- Removing variables

# COMMON ISSUES IN CLEANING DATA

- Experimental data often require performing most all cleaning issues
- Even our course grade data require some cleaning
- That's our focus today

# EXPORTING COURSE GRADES FROM MYCOURSES

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- It's easy to export course grades from myCourses
- Go ahead and download the current grades from one of your courses
- We've created a dummy set of grades for you to play with:
  - `http://bitly.com/celt_grades`
- Feel free to use our data set or your own

# EXPORTING COURSE GRADES FROM MYCOURSES

- By default, the file name is a little cumbersome
- File names include the date and time it was downloaded followed by the department prefix and course number
  - **Ex.:** `05_Apr_22-54_Grades-DEPT_XXXX_XX.csv`
- It's best to start by renaming the file to something much simpler
  - **Ex.:** `psyc_4316-01.csv`

# CLEANING OUR COURSE GRADE DATA

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- Let's open the `course_grades_example.csv` data file and take a look
- Notice the file opens by default in Excel
- It's best to peform cleaning operations in Excel before importing to SPSS
- We've found SPSS isn't the ideal tool for manipulating and cleaning data

# CLEANING OUR COURSE GRADE DATA

**With your neighbor:**

**Identify some issues in the data we need to address before importing.**

# CLEANING OUR COURSE GRADE DATA

1. Rename variables
2. Remove row 2 (Points Posible)
    - We don't want to lose the points possible value though
    - We could create a new variable (e.g., `points_possible`) for each assignment, or
    - We could go ahead and perform the percentage calculation then remove row 2
3. Remove all non-numeric variables (e.g., `Student`, `ID`, `Section`, ..., `Current Grade`, etc.)

# CLEANING OUR COURSE GRADE DATA

- Once we've removed all unwanted non-numeric variables, we're ready to import the data into SPSS
- Go ahead and open SPSS

# IMPORTING DATA INTO SPSS

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- We can open our `course_grades_example.csv` file into SPSS like any other application
- Be sure to select *Text* under the *Files of Type* dropdown menu
- Select *Yes* under *Are variable names included at the top of your file?*

# PREPARING TO ANALYZE

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## With your neighbor:

## Identify two or three questions we might want to answer with this data

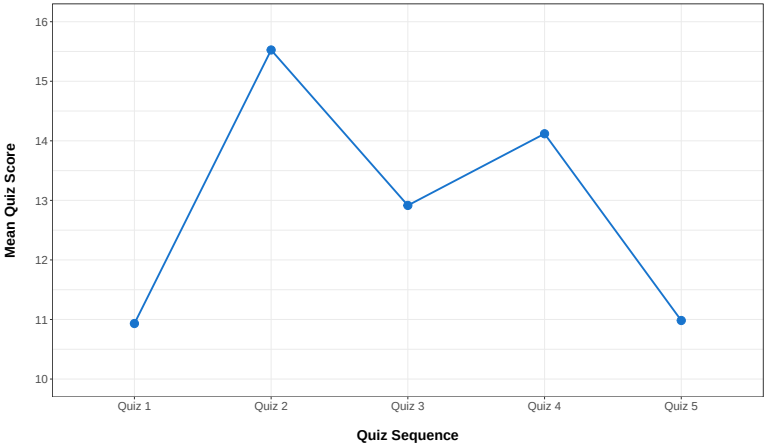
- Hint 1: Some variables of interest may not be present
- Hine 2: The data may require additional manipulation

# PREPARING TO ANALYZE

1. Do students' quiz scores increase over time?
2. Are quiz grades normally distributed?
3. Do quiz grades differ by:
    - Major?
    - Classification?
    - Gender?

# PREPARING TO ANALYZE

## Do students' quiz scores increase over time?



# SESSION 2

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- Summarizing and Visualizing Data
- We'll use a modified version of the course grades data to:
    1. Calculate basic descriptive statistics.
    2. Construct informative data figures.
    3. Use both in order to form meaningful questions of interest.

# QUESTIONS?