Flipped IN-CLASS Lesson Plan Template – Class Meeting Time 125 minutes (10 weeks summer class)

TOPIC OR CONCEPT:
Chapter 11 – Part 1 - Basic Data Analysis for Quantitative Research – Testing for Differences

Basic objectives for preparatory work:

1. Describe the measures of central tendency and define the most appropriate measure for the different scales.
2. Describe the measures of dispersion and define the most appropriate measure for the different scales.
3. Set the null and alternative hypos for univariate, bivariate, and multivariate hypotheses testing.

Advanced objectives for classwork & after class work:

1. Measures of Central Tendency
   - Justify the selection of central tendency measures given the type of the scale used.
   - Run central tendency measures in SPSS.
   - Interpret the results.
2. Measures of Dispersion
   - Justify the selection of dispersion measures given the type of the scale used.
   - Run dispersion measures in SPSS.
   - Interpret the results.
3. Univariate Hypothesis Testing:
   - Set the critical value for univariate hypothesis testing.
   - Run the One-Sample T Test analysis in SPSS.
   - Determine statistical significance.
   - Interpret the results.
4. Bivariate Hypothesis Testing for nominal or rdinal data:
   - Run the Chi Square analysis in SPSS.
   - Determine statistical significance.
   - Determine whether the results are distorted.
   - Interpret the results.
5. Bivariate Hypothesis Testing for interval or ratio data:
   - Determine whether the samples are independent or dependent.
     A. For independent samples:
        1. Run the Independent-Samples T Test in SPSS.
        2. Determine statistical significance.
        3. Interpret the results.

     B. For dependent samples:
        1. Run the Paired-Samples T Test in SPSS.
        2. Determine statistical significance.
        3. Interpret the results.
6. Multivariate Hypothesis Testing for more than two metric (interval or ratio) dependent variables with one independent variable:
   - Run a one-way ANOVA.
   - Add Post Hoc analysis.
   - Determine statistical significance.
   - Interpret the results.

	Time planned	Activity and rationale	Resources needed
Beginning of class period	10 minutes	Fill in the blank, check all that apply, true/false and matching easy questions to address understanding of basic LO.	Quiz on Blackboard graded for in class activity.
Middle of period **1**	10 minutes	Mini lecture based on quiz or poling results + SPSS training: • Clarify misconceptions with basic learning objectives. • Run measures of central tendency and dispersion in SPSS. • Justify the most appropriate measures *used.* • Interpret the results	Quiz item analysis. PPT slides SPSS guidelines (handouts)
Take Notes	3 minutes		
Middle of period **2**	5 minutes	Mini Lecture + SPSS training • Univariate Hypothesis Testing: 1. Set the Null and Alternate Hypo. 2. Set the critical value for univariate hypothesis testing. 3. Run the One-Sample T Test analysis in SPSS. 4. Determine statistical significance. 5. Interpret the results.	PPT slides SPSS guidelines (handouts)
Take Notes	3 minutes		
Middle of period **3**	10 minutes	Mini Lecture + SPSS training • Bivariate Hypothesis Testing for nominal or ordinal data: 1. Run the Chi Square analysis in SPSS. 2. Determine statistical significance. 3. Determine whether the results are distorted. 4. Interpret the results.	PPT slides SPSS guidelines (handouts)
Take Notes	3 minutes		
Middle of Period **4**	15 minutes	Mini Lecture + SPSS training • Bivariate Hypothesis Testing for interval or ratio data: 1. Determine whether the samples are independent or dependent. 2. For independent samples: a. Run the Independent-Samples T Test in SPSS. b. Determine statistical significance. c. Interpret the results. 3. For dependent samples: a. Run the Paired-Samples T Test in SPSS. b. Determine statistical significance. c. Interpret the results.	PPT slides SPSS guidelines (handouts)
Take Notes	3 minutes		

	Time planned	Activity and rationale	Resources needed
Middle of Period **5**	10 minutes	Mini Lecture + SPSS training 1. Multivariate Hypothesis Testing for more than two metric (interval or ratio) dependent variables with one independent variable: a. Run a one-way ANOVA. b. Add Post Hoc analysis. c. Determine statistical significance. d. Interpret the results.	PPT slides SPSS guidelines (handouts)
Take Notes	3 minutes		
Break	5 minutes		
Middle of period **6**	30 minutes	Groups working on in-class activity # 4 to conduct: 1. Measures of central tendency analysis. 2. Measures of dispersion analysis. 3. One-Sample T Test 4. Chi Square 5. Independent-Samples T Test 6. Paired-Samples T Test 7. One-way ANOVA	Activity Instructions and questions SPSS Data Set to be used to conduct analysis SPSS guidelines (handouts) / Open book Supervision and support
End of period	15 minutes	Groups sharing results of data analysis. Instructor discuss solutions and clarify misconceptions.	

Flipped AFTER CLASS Work Plan Template

Advanced learning objective	Activity and rationale	Instructions to students
(Place ALO here) 1. Select and justify the appropriate measure of central tendency and dispersion. 2. Select and justify the data analysis method used to conduct basic hypotheses testing for statistical significance and interpret their results.	Homework including: ▪ Five problems recognition questions asking students to determine the most appropriate measure of central tendency and dispersion, and/or the appropriate analysis method. testing for significance data. ▪ Five interpretations questions of conducted testing for significance data analysis. ▪ *Unfortunately, students don't have access to SPSS software outside of class to include conducting analysis in the homework* This homework provides practice to problems recognition, appropriate analysis selection, statistical significance mindfulness (checking for statistical significance before jumping to conclusions), and results interpretation.	Refer to the following two handouts: - SPSS Basic Data Analysis Guidelines (Research Projects > handouts). - In-class activity # 4 "solved" questions with detailed explanations (Weekly Modules > Week X > In-Class Activity #). The SPSS file will offer you guidelines to help you select the appropriate measure/method and interpret analysis results while the solved activity will enable you to check the answer you gave in class against how to correctly conduct analysis to clarify misconceptions and avoid making the same mistakes. Note that you can work within groups to do the homework and have one submission for the group. However, make sure you can answer the questions independently as exam questions will be like the ones in this homework.