- A. Aggregation of data to macro level units runs the risk of the ecological fallacy, where you cannot infer that a macro association translates into the same micro effect.
- B. Disaggregation of data to micro level units runs the risk of the ecological fallacy, where you cannot infer that a macro association translates into the same micro effect.
- C. Aggregation of data to macro level units runs the risk of the ecological fallacy, where you cannot infer that a micro association translates into the same macro effect.
- D. Disaggregation of data to micro level units runs the risk of the ecological fallacy, where you cannot infer that a micro association translates into the same macro effect.
- 2. In a random effects ANOVA, $Y_{ij} = \gamma_{00} + u_j + \varepsilon_{ij}$
 - A. γ_{00} is the fixed intercept term, u_j a residual effect at individual level, and ε_{ij} a random effect at group level
 - B. γ_{00} is the random intercept term, u_j a residual effect at individual level, and ε_{ij} a random effect at group level
 - C. γ_{00} is the random intercept term, u_j a random effect at group level, and ε_{ij} a residual effect at individual level
 - D. γ_{00} is the fixed intercept term, u_j a random effect at group level, and ε_{ij} a residual effect at individual level

3.

For a random effects ANOVA, the intra class correlation is

- A. the proportion of variance explained by the group
- B. the correlation between two randomly drawn individuals in one randomly drawn group
- C. the variance of the intercept as a proportion of total variance
- D. All of the above

4. The following output was obtained for a random effects ANOVA

Estimates of Covariance Parameters^a

					95% Confidence Interval	
Parameter	Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Residual	38.986611	1.193325	32.671	.000	36.716512	41.397064
Intercept [subject = class] Variance	6.735678	1.253613	5.373	.000	4.676916	9.700698

- a. Dependent Variable: test.
- A. Because the intercept variance is significant, the ICC will be small and the group structure is not important
- B. Because the residual variance is not significant, the ICC will be small and the group structure is not important
- C. Because the intercept variance is significant, the ICC will be large and the group structure is important
- D. Because the intercept variance is significant, the ICC will be large and the group structure is not important.
- 5. For a random intercept multilevel model, $Y_{ij} = \beta_{0j} + \beta_1 X_{ij} + \epsilon_{ij}$ with $\beta_{0j} = \gamma_{00} + u_{0j}$ and $\beta_1 = \gamma_{10}$
 - A. There are two fixed and two random/residual effects
 - B. There are three fixed and one random/residual effect
 - C. There are one fixed and three random/residual effects
 - D. There are four fixed effects.

6. In a random intercept multilevel model, we obtain the following output:

Estimates of Fixed Effects^a

						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	57.595965	.132905	375.699	433.362	.000	57.334634	57.857296
ses	3.873861	.136624	3914.638	28.354	.000	3.605999	4.141722

a. Dependent Variable: math.

A. There is a significant positive association between math and ses

- B. There is a positive association between *math* and *ses* but it's significance needs to be assessed using the estimates of covariance parameters.
- C. The slope varies around a mean value of 3.88
- D. None of the above.

7.
$$Y_{ij} = \gamma_{00} + \gamma_{10} \text{ (SES)}_{ij} + u_{0j} + \varepsilon_{ij}$$

- A. If γ_{00} = 0, we have a random effects ANOVA
- B. If $\gamma_{10} = 0$, we have a random effects ANOVA
- C. If $u_{0j} = 0$, we have a random effects ANOVA
- D. If ε_{ij} = 0, we have a random effects ANOVA