Psych 610 Handout #33
Prof. Moore

Basic Procedures for Ancova (no longer covered due to time constraints)

I. Calculate $\sum X$, $\sum X^2$, $\sum Y$, $\sum Y^2$, $\sum XY$, $\bar{X}$, $\bar{Y}$ for each group.

II. Make a table of SS and SP for each variable.

Source	Cov = X	D V = Y	XY
A	$[A_x] - [T_x]$		$[A_{xy}] - [T_{xy}]$
S/A	$[X] - [A_x]$		$[XY] - [A_{xy}]$
"Total"	$[X] - [T_x]$		$[XY] - [T_{xy}]$

III. Calculate sum squares for Y that are adjusted for regression, and use to finish ancova.

Source	df	SS	MS	F
Adj. A	a - 1			
Adj. S/A	(a)(n – 1) - 1			
Adj. "Total"	an – 1 – 1			

Adj. $SS_{S/A} = SS_{S/A(Y)} - [(SP_{S/A})^2 / SS_{S/A(X)}]$
Adj. $SS_{Tot} = SS_{Tot(Y)} - [(SP_{Tot})^2 / SS_{Tot(X)}]$
Adj. SS_A =Adj. SS_{Tot} – Adj. $SS_{S/A}$

IV. To test homogeneity of regression:

Find $SS_{w.reg.} = \sum SS_{w.reg.(ai)}$
$SS_{w.reg.(ai)} = SS_y - [(SP_{xy})^2/SS_x]$
$SS_y = [Y] - [T]$ for that group
$SP_{xy} = [XY] - [T_{xy}]$ for that group
$SP_x = [X] - [T_x]$ for that group
$SS_{bet.reg} =$ adj. $SS_{S/A} - SS_{w.reg.}$

Make a table for results:

Source	df	SS	MS	F
Betw. reg.	a – 1			
Within reg.	a(n – 2)			
Adj. S/A	a (n – 1) – 1			

V. To calculate adjusted means:

$b_{S/A} = (SP_{S/A})/SS_{S/A(x)}$

$\bar{Y}^2_{Ai} = \bar{Y}_{Ai} - b_{S/A} (\bar{X}_{Ai} - \bar{X})$