

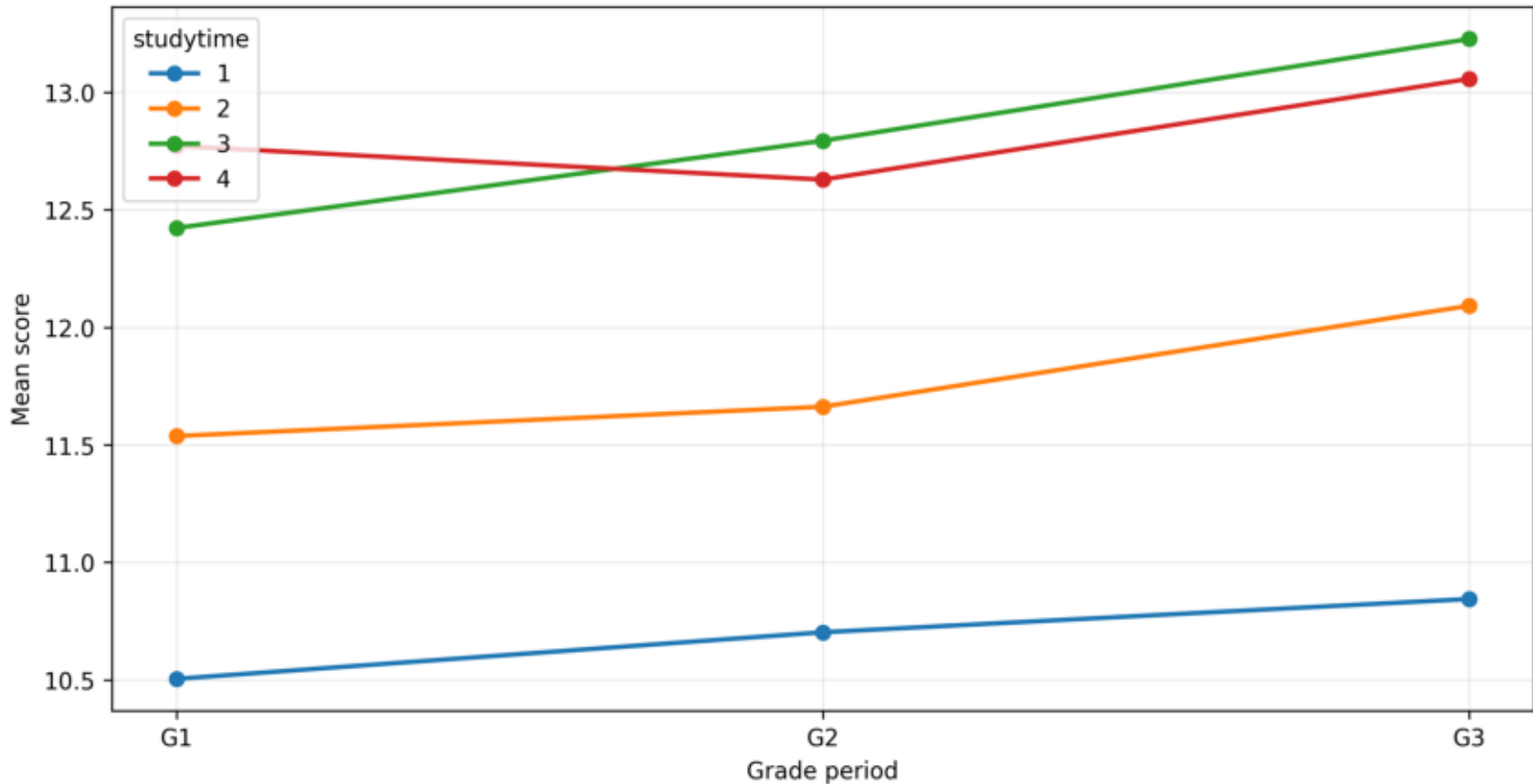
Mixed ANOVA Python Report

Mixed ANOVA / split-plot ANOVA Model Repeated Measures Within Factor Between Factor Subjects Between Groups Within Levels Grand Mean
ANOVA G1, G2, G3 Grade_Period studytime 649 4 3 11.625064

Source	SS	df	MS	Error Term	Error SS	Error df	Error MS	F	P Value	Partial Eta Squared	Decision	alpha .05
Between factor: studytime	1142.269330	3	380.756443	Subject(studytime)	14464.027537	645	22.424849	16.979220	1.264142e-10	0.073193	Reject H0	
Within factor: Grade_Period	86.330765	2	43.165383	Grade_Period x Subject(studytime)	1529.356823	1290	1.185548	36.409648	4.440892e-16	0.053433	Reject H0	
Grade_Period x studytime	12.312412	6	2.052069	Grade_Period x Subject(studytime)	1529.356823	1290	1.185548	1.730903	1.102930e-01	0.007986	Fail to reject H0	

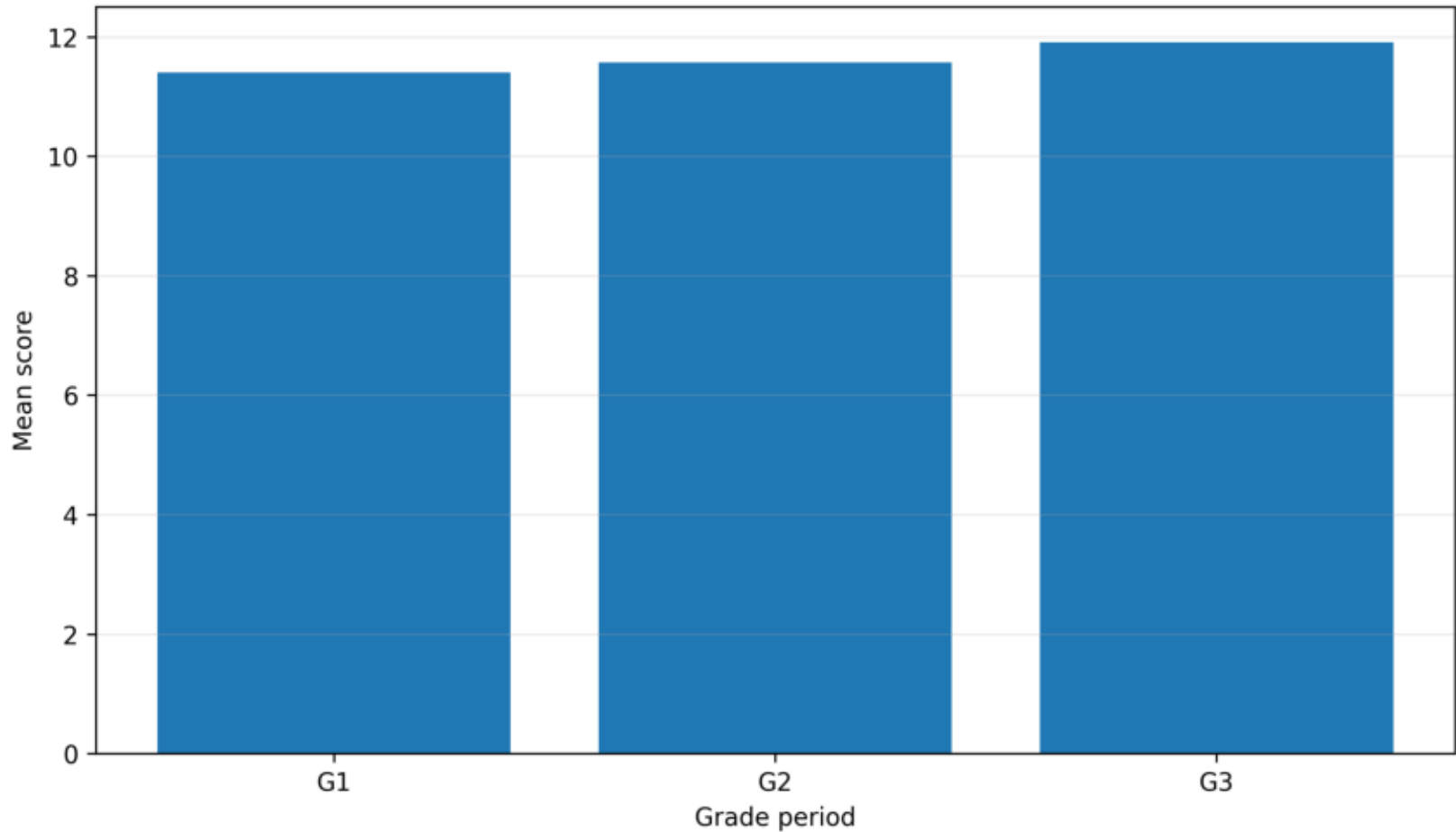
Mixed ANOVA: Profile Plot of Repeated Measures

Mean G1, G2, and G3 trajectories by studytime group.



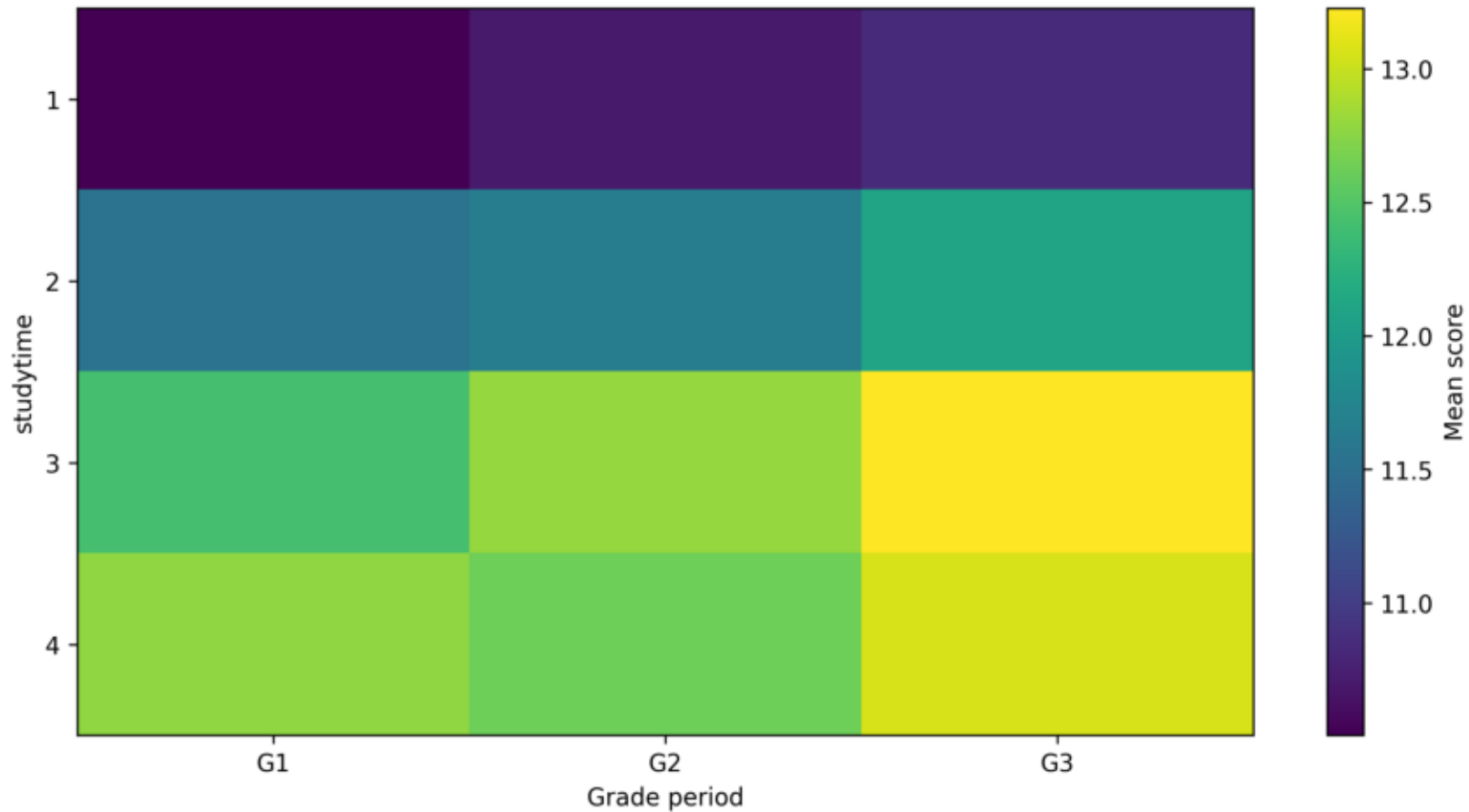
Mixed ANOVA: Overall Within-Subject Means

Overall mean score across G1, G2, and G3.



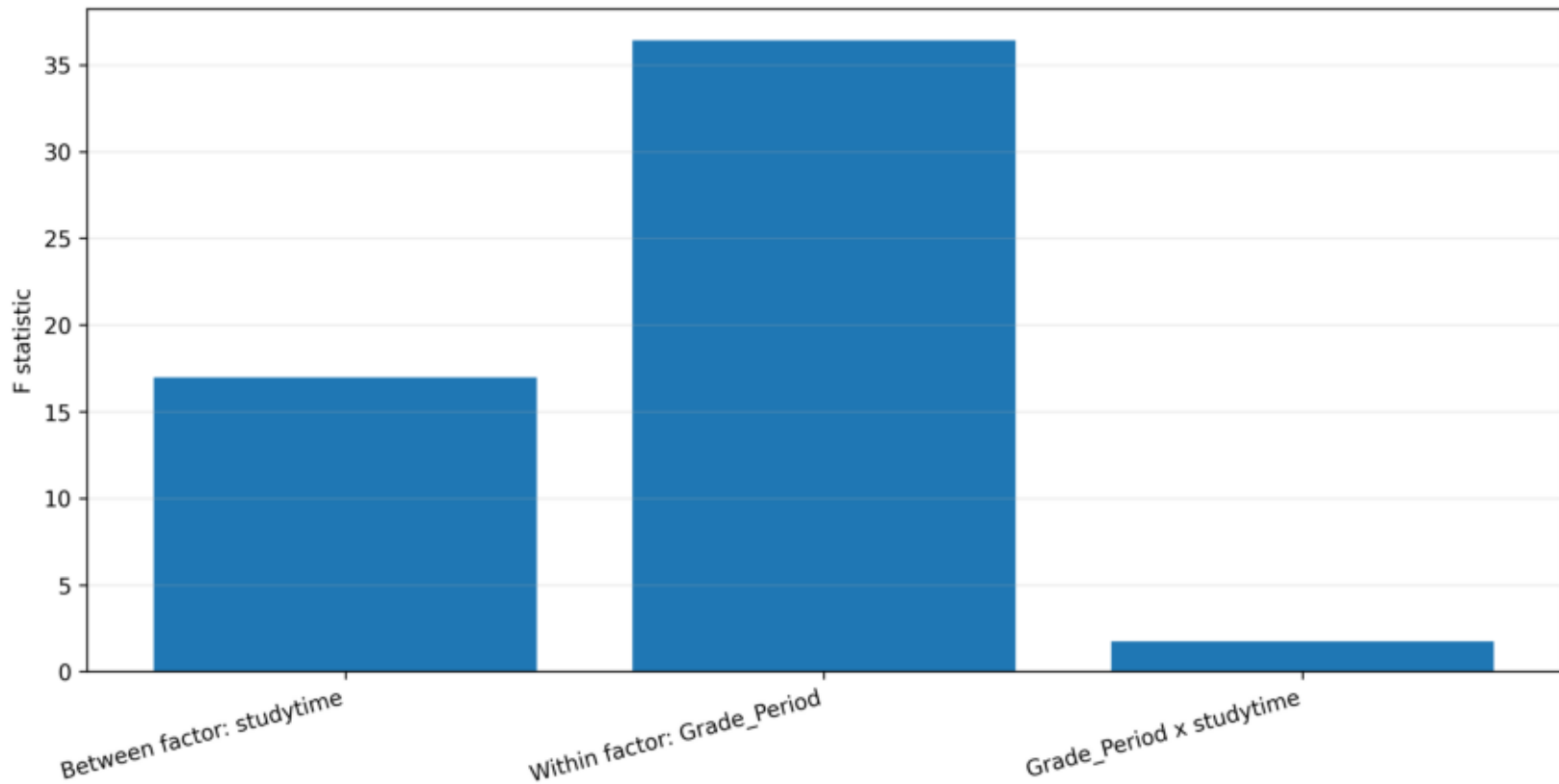
Mixed ANOVA: Mean Heatmap

Cell means for grade period by studytime group.



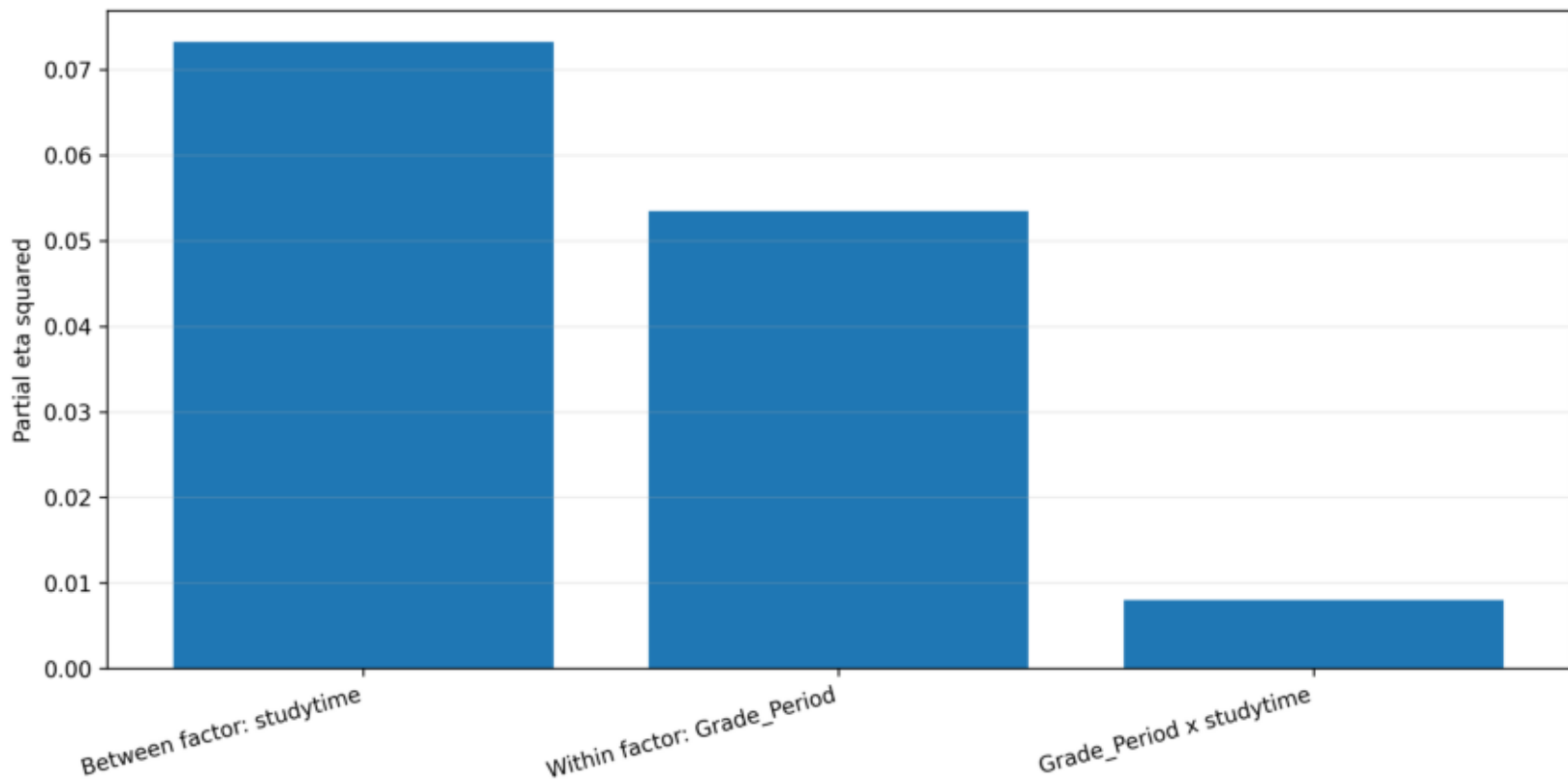
Mixed ANOVA: F Statistics

Between, within, and interaction F tests.



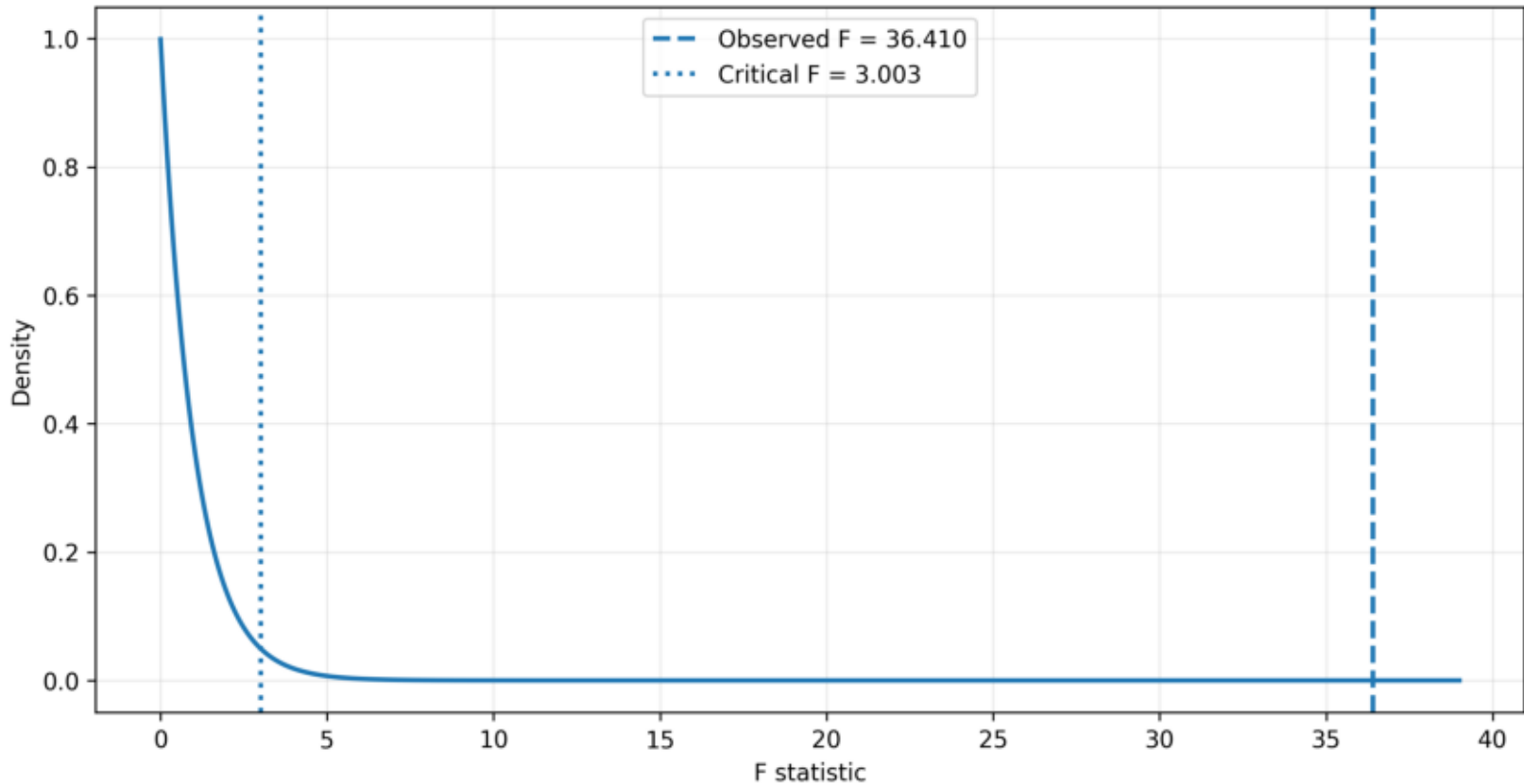
Mixed ANOVA: Partial Eta Squared

Effect-size comparison for mixed ANOVA effects.



Mixed ANOVA: Within-Subject F Distribution

Right-tail p-value = $4.441e-16$.



Mixed ANOVA: Difference Score Distributions

Difference scores provide a practical repeated-measures assumption check.

