Don't Let the Power go to Your Head

Scenario 2: Linear Regression

G*Power 3.1.9.7

File Edit View Tests Calculator Help

Central and noncentral distributions | Protocol of power analyses

```
[5] -- Tuesday, August 11, 2020 -- 12:55:51
F tests – Linear multiple regression: Fixed model, R² deviation from zero
Analysis:    A priori: Compute required sample size
Input:       Effect size f²                  =  0.15
             α err prob                       =  0.05
             Power (1−β err prob)             =  0.8
             Number of predictors             =  3
Output:      Noncentrality parameter λ        =  11.5500000
             Critical F                       =  2.7300187
             Numerator df                     =  3
             Denominator df                   =  73
             Total sample size                =  77
             Actual power                     =  0.8017655
```

Test family

F tests

Statistical test

Linear multiple regression: Fixed model, R² deviation from zero

Type of power analysis

A priori: Compute required sample size – given α, power, and effect size

Input Parameters

Determine =>	Effect size f²	0.15
	α err prob	0.05
	Power (1−β err prob)	0.8
	Number of predictors	3

Output Parameters

Noncentrality parameter λ	11.5500000
Critical F	2.7300187
Numerator df	3
Denominator df	73
Total sample size	77
Actual power	0.8017655

X–Y plot for a range of values   Calculate

Scenario 3: Repeated measures, within-between MANOVA

G*Power 3.1.9.7

File Edit View Tests Calculator Help

Central and noncentral distributions | **Protocol of power analyses**

```
[6] -- Tuesday, August 11, 2020 -- 12:56:25
F tests – MANOVA: Repeated measures, within–between interaction
Options:      Pillai V, O'Brien–Shieh Algorithm
Analysis:     A priori: Compute required sample size
Input:        Effect size f(V)              =  0.25
              α err prob                    =  0.05
              Power (1–β err prob)          =  0.8
              Number of groups              =  2
              Number of measurements        =  2
Output:       Noncentrality parameter λ     =  8.0000000
              Critical F                    =  3.9163246
              Numerator df                  =  1.0000000
              Denominator df                =  126
```

Test family
F tests

Statistical test
MANOVA: Repeated measures, within–between interaction

Type of power analysis
A priori: Compute required sample size – given α, power, and effect size

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Input Parameters

Determine => Effect size f(V)	0.25
α err prob	0.05
Power (1–β err prob)	0.8
Number of groups	2
Number of measurements	2

Output Parameters

Noncentrality parameter λ	8.0000000
Critical F	3.9163246
Numerator df	1.0000000
Denominator df	126
Total sample size	128
Actual power	0.8014596
Pillai V	0.0588235

Options | X–Y plot for a range of values | Calculate