RSudio

```
library(olsrr)

model <- lm(PctBodyFat ~ Age+Weight+Height+Neck+Chest+

            Abdomen+Hip+Thigh+Knee+Ankle+Biceps+

            Forearm+Wrist, data=Bodyfat)

ols_step_both_p(model)
```

```
Stepwise Selection Method
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Candidate Terms:

1. Abdomen
2. Weight
3. Wrist
4. Forearm

We are selecting variables based on p value...

Variables Entered/Removed:

✓ Abdomen
✓ Weight
✓ Wrist
✓ Forearm
```

Final Model Output

Model Summary

R	0.857	RMSE	4.343
R-Squared	0.735	Coef. Var	22.676
Adj. R-Squared	0.731	MSE	18.859
Pred R-Squared	0.721	MAE	3.542

RMSE: Root Mean Square Error
MSE: Mean Square Error
MAE: Mean Absolute Error

ANOVA

	Sum of Squares	DF	Mean Square	F	Sig.
Regression	12920.754	4	3230.189	171.279	0.0000
Residual	4658.236	247	18.859		
Total	17578.990	251			

Parameter Estimates

model	Beta	Std. Error	Std. Beta	t	Sig	lower	upper
(Intercept)	-34.854	7.245		-4.811	0.000	-49.124	-20.584
Abdomen	0.996	0.056	1.283	17.760	0.000	0.885	1.106
Weight	-0.136	0.025	-0.476	-5.480	0.000	-0.184	-0.087
Wrist	-1.506	0.443	-0.168	-3.401	0.001	-2.377	-0.634
Forearm	0.473	0.182	0.114	2.603	0.010	0.115	0.831

```
                              Stepwise Selection Summary
-------------------------------------------------------------------------------------------
                     Added/                   Adj.
Step    Variable     Removed     R-Square    R-Square     C(p)         AIC         RMSE
-------------------------------------------------------------------------------------------
   1    Abdomen      addition       0.662       0.660    72.2430    1517.7903     4.8775
   2     Weight      addition       0.719       0.717    20.1710    1473.1848     4.4556
   3     Wrist       addition       0.728       0.724    13.7070    1467.0412     4.3930
   4    Forearm      addition       0.735       0.731     8.8240    1462.2197     4.3427
   5      Neck       addition       0.738       0.733     8.0750    1461.4419     4.3276
-------------------------------------------------------------------------------------------
```

```
library(olsrr)
model <- lm(PctBodyFat ~ Age+Weight+Height+Neck+Chest+
              Abdomen+Hip+Thigh+Knee+Ankle+Biceps+
              Forearm+Wrist, data=Bodyfat)
ols_step_both_p(model, details = TRUE)
```

```
library(olsrr)
model <- lm(PctBodyFat ~ Age+Weight+Height+Neck+Chest+
              Abdomen+Hip+Thigh+Knee+Ankle+Biceps+
              Forearm+Wrist, data=Bodyfat)
ols_step_both_aic(model)
```

The following selects the best subset based on criteria such as R^2, MSE, Mallow's Cp and AIC

```
library(olsrr)
model <- lm(PctBodyFat ~ Age+Weight+Height+Neck+Chest+
              Abdomen+Hip+Thigh+Knee+Ankle+Biceps+
              Forearm+Wrist, data=Bodyfat)
ols_step_best_subset(model)
```