How to make OpenOffice give you the errors in the parameters of a fitted line
(\textit{which it should just give you directly anyway but it won't unless you go through this tortuous procedure -- but at least it's free...})

You start with a set of x-y data pairs that you wish to fit a line to. In the example, they are voltages across a resistor and the current through the resistor:

\begin{verbatim}
V [Volts]  I [milliAmps]
1.25    0.13
8.20    0.84
9.70    1.00
11.00   1.15
16.00   1.70
\end{verbatim}

The function you need is written:

\begin{verbatim}
LINEST
\end{verbatim}

(meaning LINE STatistics)

You can check the OpenOffice Help facility for details -- the directions I give here are just the basics.

Find a block of blank cells at least 2 rows by 2 columns (more is better :).

In the upper left cell, type:

```
= LINEST(
```

Select the y-values of your data. In this example, we’ll use the current as the dependent variable (i.e., the “y-values”).

This is what it should look like at this point (I'm choosing I as my Y values):
Type a semicolon and select the x values (i.e., the independent variable). I'm using the voltage as the independent variable. So it should look like:

```excel
=A2;B2;C2
```

Hit CTRL-SHIFT-ENTER. The cursor will be one cell below where you just typed. Move back to the cell you typed into (i.e., cursor UP). Now “grab” the small “handle” (lower right corner) and pull it one cell to the right. Then “grab” it again and pull it down two cells. It should look like this:

```excel
|=linest(B3:B7;A3:A7)
```

Type a semicolon, another semicolon, the word “TRUE” and close parenthesis. Now you should have:

```excel
=A2;B2;C2;TRUE
```

Hit CTRL-SHIFT-ENTER. The cursor will be one cell below where you just typed.
The number in the upper right corner will be the slope (in this case, 0.106312). You can check this easily enough (when I check, I get 0.103 – good enough). The number in the upper right corner is the intercept (harder to check, but possible – I get 0.050. In the ballpark.) The number below the slope is the error in the slope. So in this example, the slope is given by:

\[
\text{Slope} = (0.106312 \pm 0.001606) \text{ mA/V}
\]

Likewise, the intercept is:

\[
\text{Intercept} = (-0.01726 \pm 0.016684) \text{ mA}
\]

The last number you might care about is the correlation coefficient, \( r^2 \). That is below the error in the slope:

\[
r^2 = 0.999316
\]