

### 8.3: Weighted Linear Regression With Errors in Both $x$ and $y$

If we remove our assumption that indeterminate errors affecting a calibration curve are present only in the signal ( $y$ ), then we also must factor into the regression model the indeterminate errors that affect the analyte's concentration in the calibration standards ( $x$ ). The solution for the resulting regression line is computationally more involved than that for either the unweighted or weighted regression lines. Although we will not consider the details in this textbook, you should be aware that neglecting the presence of indeterminate errors in  $x$  can bias the results of a linear regression.

#### Note

See, for example, Analytical Methods Committee, "Fitting a linear functional relationship to data with error on both variable," [AMC Technical Brief, March, 2002](#)), as well as this chapter's Additional Resources.

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