Let $\Lambda$ be a finite dimensional algebra over a field $K$. If $M$ and $N$ are left $\Lambda$-modules, an integration of $M$ into $N$ is a $K$-linear map $f : \Lambda \otimes_K M \to N$ for which $f(\lambda_1 \lambda_2 \otimes x) = \lambda_1 f(\lambda_2 \otimes x) + f(\lambda_1 \otimes \lambda_2 x)$. The reason for the name "integration" is that if one writes $\int (\int x \, dt) \, d\lambda$ for $f(\lambda \otimes x)$ and assumes that $\lambda_1, \lambda_2,$ and $x$ are functions of the independent variable $t$, the above equation turns into the following valid formula from integral calculus:

$$\int \left( \int x \, dt \right) d(\lambda_1 \lambda_2) = \lambda_1 \int \left( \int x \, dt \right) d\lambda_2 + \int \left( \int \lambda_2 x \, dt \right) d\lambda_1.$$ 

Integrations give an alternative, simpler approach to the computation of the group $\text{Ext}_\Lambda^1(M, N)$ and shed new light on almost split sequences. The notion of integration is inspired by the theory of bocses.