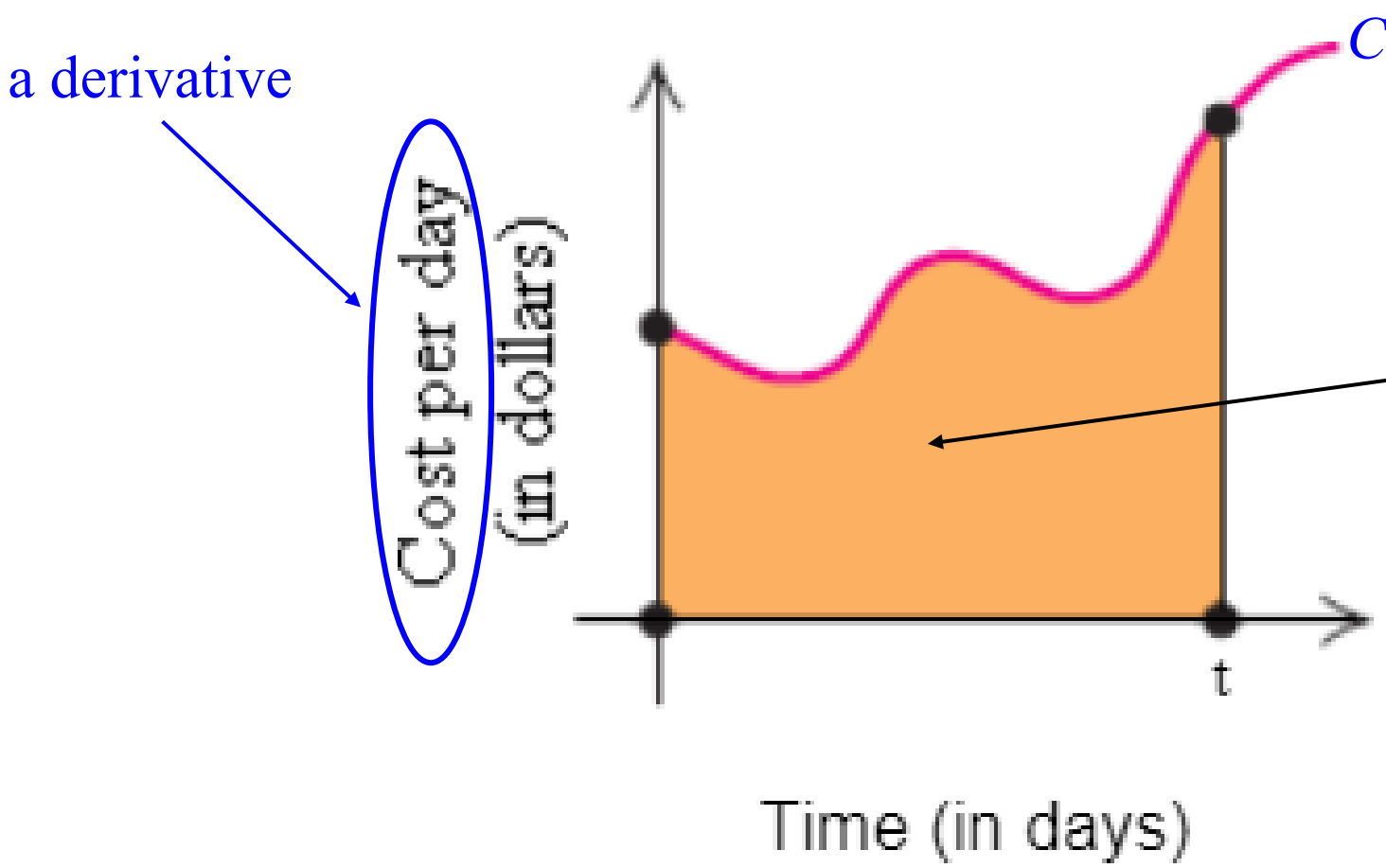
FAR BEYOND

MAT122

Indefinite Integrals

Stony Brook University

Integration Interpretation



Then its integral, $C(x)$, by definition, is the area under the curve from 0 to ***t*** days.

$C(x)$ would then be <u>total cost</u> function.

Indefinite Integral Notation

An **integral**, or anti-derivative, represents the area under a curve.

Indefinite Integral

$$\int f(x)\,dx$$

integration has NO bounds

when evaluating, add $+C$

if $f(x) = x^n$

then $\int f(x)dx = \frac{x^{n+1}}{n+1} + C$

ex. $\int \left(4x^2 - 3x + 7\right)dx$

$$= 4 \cdot \frac{x^3}{3} - 3 \cdot \frac{x^2}{2} + 7x + C$$

$$= \boxed{\frac{4}{3}x^3 - \frac{3}{2}x^2 + 7x + C}$$

ex. $\int e^x dx$

$$= \boxed{e^x + C}$$

ex. $\int \frac{1}{2\sqrt{x}}dx$

$$= \boxed{\sqrt{x} + C}$$