



$$\begin{aligned}
 \mathbf{D}C_1 &= k_{31}C_3O_2 + k_{21}C_2O_2 - k_{12}C_1 \\
 \mathbf{D}O_2 &= k_{12}C_1 - k_{31}C_3O_2 - k_{21}C_2O_2 \\
 \mathbf{D}C_2 &= k_{12}C_1 - k_{21}C_2O_2 - k_{23}C_2 \\
 \mathbf{D}C_3 &= k_{23}C_2 - k_{31}C_3O_2
 \end{aligned}$$