

Introduction for Module 2 – Kinetics

Textbook: [Open Stax Chemistry 2e](#)

Suggested Reading: Chapter 12 (**especially 12.2-12.3**)

Learning Objectives:

- **Derive rate expressions from the balanced equation for a given chemical reaction**
- **Explain the form and function of a rate law**
- **Use rate and concentration data to identify reaction orders and derive rate laws**

Captions and Attributions:

- 1) Iron powder reacts rapidly with dilute hydrochloric acid, while an iron nail reacts more slowly because the surface area exposed to the acid is much less. [Figure 12.6 Iron powder reacts rapidly with dilute hydrochloric acid](#) by [Open Stax](#) is [licensed under CCBY 4.0](#).
- 2) Statues made from carbonate compounds typically weather slowly over time, demonstrating a reaction rate that can be described by chemical kinetics. [Figure 12.7 Statues made from carbonate compounds](#) by James P. Fisher III and [Open Stax](#) is [licensed under CCBY 4.0](#).
- 3) Wildfires spread rapidly - a demonstration of the kinetics of burning. What increases/decreases the rate of this reaction? ["Nevada wildfire" by USFWS Headquarters](#) is [licensed under CCBY 2.0](#).
- 4) Washing hands for 20 seconds is not just a good rule but also shows the kinetics of the reaction for cleansing hands! ["Washing hands with soap"](#) by [peapod labs](#) is [licensed under CCBY 4.0](#).



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