

# Pharmaceutical Manufacturing

40-MINUTE ONLINE COURSE | LEVEL 2

SUGGESTED PREREQUISITE: THE BIOLOGY OF BIOTECH

## OVERVIEW

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**Pharmaceutical Manufacturing** introduces the complex processes of manufacturing, packaging and transporting small molecule drugs. Drug manufacturing is highly regulated by governments to ensure patients receive safe and effective medications. If you are new to drug production, drug development or product launch, Pharmaceutical Manufacturing provides you with the knowledge to understand how to get a small molecule drug from the production line to the patient and remain in regulatory compliance.

### Five Takeaways:

1. Diagram the key steps of small molecule drug production on a large scale.
2. List the main ingredients that make up a small molecule drug.
3. Explain the ways regulators ensure manufacturing quality control through supplier, production, packaging and shipping validation.
4. Compare and contrast the four most common pharmaceutical formulations: tablets, capsules, suspensions and emulsions.
5. Describe the pharmaceutical supply chain considerations including the prevention of drug counterfeiting.

## AGENDA

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- **Chemical Synthesis** explains the types of reactions used to synthesize small molecule drugs.
- **API Purification** goes over the various purification methods for small molecule drug production and explains how supplier validation ensures manufacturing quality.
- **Formulation** compares the four most common pharmaceutical formulations: tablets, capsules, suspensions and emulsions.
- **Packaging** discusses pharmaceutical packaging and shipping regulations, including cold chain management, shipping validation and best practices to prevent drug counterfeiting.