

LYOPHILIZATION TECHNOLOGY: PRODUCT, PROCESS AND SYSTEMS

7-9 APRIL, 2026
CARLSBAD (CA), USA



Course overview

This course provides an opportunity to explore a wide range of elements in the lyophilization process. From characterization of products to cycle development and scale up, we cover the science and engineering of lyophilization. During the course we will discuss fundamental equipment features of refrigeration, vacuum and control systems i.e. PAT tools, and aspects of troubleshooting, maintenance and qualification. It's hosted in the modern Future Facility™ at **Open Biopharma Research and Training Institute** in Carlsbad.

Suitable for industries including:

- ✓ Pharma R&D to Production
- ✓ Diagnostics
- ✓ Lyo Processing & Production
- ✓ Biotechnology

What is covered in the price?



Over 18h of lyophilization content



Printed learning materials (full lectures notes)



Lunch & Refreshments

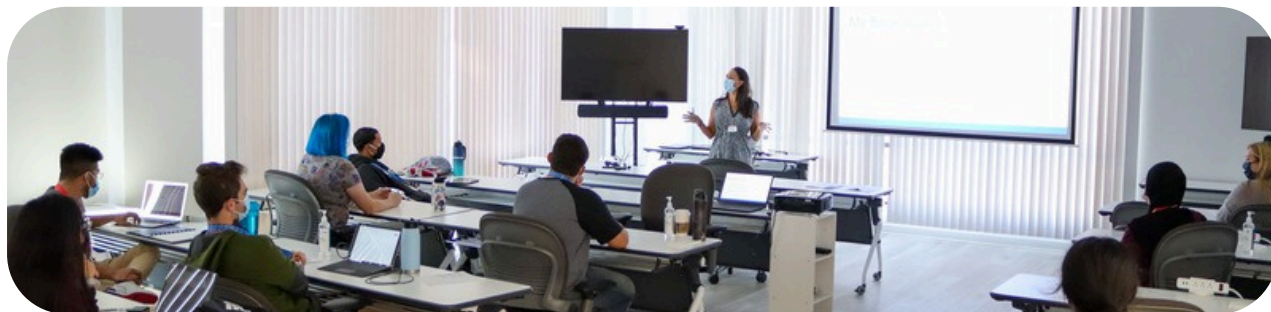


Tour of the Biopharma Technology Laboratory followed by a Happy Hour



Course schedule

Day 1: Introduction to Lyophilization Technology



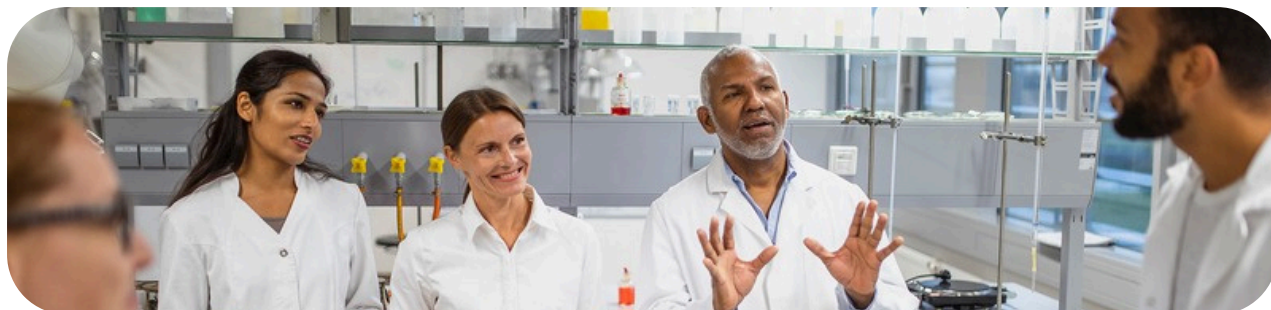
Start with the fundamentals of lyophilization, exploring process principles, freezing techniques, and drying stages. Learn about refrigeration, stoppering systems, formulation strategies, and the role of process condensers, providing a solid foundation in both theory and practical system design.

Day 2: Cycle Development & Process Monitoring



Discover formulation characterization, vacuum systems, and strategies for lyophilizing cycle development and scale-up. Learn about process monitoring using PAT and advanced tools, explore software-based QbD approaches, and participate in a workshop evaluating lyophile appearance to apply theoretical knowledge practically.

Day 3: Advanced Product Analysis & Maintenance



Focus on product analysis techniques, including moisture content, thermal, and structural evaluations. Learn about container and closure technologies, cleaning and sterilization systems, and maintenance strategies. End with a hands-on workshop, designing a lyophilizer and solving multidisciplinary lyophilization challenges.

****Course agenda available upon request****

About our instructors **Dr. Kevin Ward**



Dr Kevin Ward entered the world of freeze-drying in 1993 when he embarked on a PhD in lyophilization of proteins and liposomes. After working in the pharmaceutical industry and vaccine development, he joined Biopharma Group in 2000. As R&D Director, Kevin has built up a team of dedicated freeze-drying scientists, worked on over 4000+ projects for more than 500 client companies across the globe, developed 3 analytical instruments, run more than 400 training courses, and secured funding for numerous research projects.



Andrew Ray

Andrew has been part of Biopharma Group's Engineering Department for 5 years, specialising in the service, repair, and installation of SP freeze dryers and analytical instruments. In recent years, he has expanded his role to include equipment validation and engineering training. Before joining Biopharma, Andrew served in the Royal Navy Submarine Service and spent two decades in the Oil & Gas sector, gaining technical and training experience.

Venue information

Open Biopharma Research and Training Institute, 1958 Kellogg Ave, Carlsbad, 92009

Registration

Use the **Pay Now** link to reserve your spot. If you need assistance with payment or prefer an alternative method please feel free to contact us.

Organizations may qualify for a returning-company discount or a group discount. Please contact us to confirm eligibility.

Book Your Spot

Pay Now

Accommodation

The cost of accommodation is not included in the course fee and that arrangements must be made by the participants. A list of local hotels will be provided with the registration confirmation.

Cost: \$4,350

Early Bird Rate: \$3,995

Deadline: February 25th, 2026

Group or Alumni Discount Available

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