



**LYOPHILIZATION TECHNOLOGY:**  
PRODUCT, PROCESS  
AND SYSTEMS



**APRIL 9-11/2018**  
**FLORIDA, USA**



# COURSE SCHEDULE

## DAY ONE

### Course Overview

This course provides a comprehensive insight into a wide range of elements in freeze drying, including details on the concepts and practical aspects of each step of the process, principles and methodologies for formulation development and characterization.

Additionally, it covers approaches to cycle development and scale-up including Quality by Design, fundamental equipment features of refrigeration, vacuum and control systems i.e. PAT tools, and aspects of troubleshooting, maintenance and qualification.

### + Day One

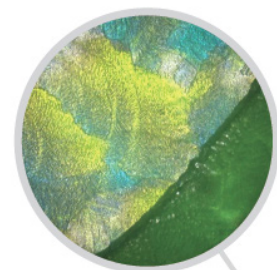
- Welcome & Course Opening
- Introduction to Freeze Drying Technology
- Freeze Dryer Design (1)
- Break
- Product Freezing
- Freeze Dryer Design (2)
- Lunch (included)
- Primary & Secondary Drying
- Freeze Dryer Systems
- Break
- General Concepts of Formulation
- Refrigeration Systems (1)

### + Day Two

- Formulation Characterization
- Vacuum Systems
- Break
- Temperature Measurement & Calibration
- Refrigeration Systems (2)
- Lunch (included)
- Cycle Development & Scale-Up
- Validation & Qualification Systems
- Break
- SMART & ControlLyo Technology
- Workshop

### + Day Three

- Maintenance Strategy for Freeze Dryers
- QbD in Freeze Drying
- Break
- Sterilization Systems
- Containers, Stoppers & Barrier Technology
- Lunch
- Freeze Dried Product Analysis
- CIP Systems
- Workshop 2 (Introduction)



## IS THIS COURSE RIGHT FOR YOU?

*IF YOU'RE INTERESTED IN:*

- 1) Biotechnology
- 2) Pharmaceuticals
- 3) Freeze Drying Formulation and Cycle Development
- 4) Diagnostic industries

## MEET THE EXPERTS



### **+ Dr. Kevin Ward**

Kevin was awarded his PhD for studies in pharmaceutical freeze drying, focusing on the use of protective agents in formulations of proteins and liposomes for drug and vaccine delivery. He is R&D Director at BTL and regularly lectures on the freeze drying process.



### **+ Kevin Smith**

With over 20 years of industry experience, Kevin is the Technical & Service Director. He has carried out installations, qualifications and re-location of a variety of freeze drying machines and is responsible for overseeing the day to day runnings of the engineering team.

PRICE  
**\$2450**

PRICE  
**\$2210**  
EARLY BIRDS

**APRIL 9TH -11TH 2018**  
**SHERATON LAKE BUENA VISTA RESORT**  
**ORLANDO BEACH**

*12205 S APOPKA VINELAND ROAD, FL 32836*

**BOOK NOW**

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Website: [www.intelligentfreezedrying.com/training-courses/](http://www.intelligentfreezedrying.com/training-courses/)

Please note that the cost of accommodation is not included in the course fee\* and that bedroom bookings must be made by the participants. A list of local hotels will be provided with the registration confirmation.

\*fees include morning and afternoon breaks, lunch and full lecture notes  
Early bird prices for this course will be valid until **February 26, 2018**

Payment must be made in full before the start of the course to guarantee a place. Payment by BACS or credit/debit card is acceptable - please note we cannot accept payment by cheque. An invoice will be issued on receipt of booking. Payments in credit/debit card will be charged in GBP at the prevailing exchange rate as set by xe.com. An invoice will be issued on receipt of booking. Discounts are also available for academia and multiple bookings from the same company, please contact Sally Potentier at [spotentier@biopharma.co.uk](mailto:spotentier@biopharma.co.uk) for more information. Cancellation in writing more than 5 weeks before the course start date will incur a service charge of 30% of the applicable fee. No refunds can be made for cancellation after this date. Substitutes will be accepted at any time. Transfer to another scheduled course must be made in writing and a service charge will be incurred. Full T&Cs available on request.