Why participate in the MVA for PAT course?

The course is aimed at researchers, scientists and engineers who work within life science and chemical industry. This course enables understanding of the central role of multivariate methods in Process Analytical Technology. Participants will learn how to interpret complex data quickly and confidently, and how to build robust models for process monitoring. Tailor to meet the needs of professionals and students, the course is designed around real-world applications, with intensive, hands-on training using The Unscrambler® software.

Multivariate technology helps process understanding and process improvement by interpreting complex data and presenting results in simple graphics and models.
# Course Agenda:

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic Covered</th>
<th>Est. Duration (hr)</th>
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<tbody>
<tr>
<td><strong>Day 1 (9:00 am - 5:00 pm)</strong></td>
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<tr>
<td>1</td>
<td>Presentation of MVA role in PAT</td>
<td>1.5</td>
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<td>2</td>
<td>Principal Component Analysis</td>
<td>3</td>
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<td>3</td>
<td>PAT Spectroscopy and Data Preprocessing</td>
<td>2.5</td>
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<td><strong>Day 2 (8:30 am - 5:00 pm)</strong></td>
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<td>4</td>
<td>Partial Least Square Regression Statistic parameters; Under-fitting and over-fitting; Outlier detection; Applications in blending, drying and API monitoring</td>
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<td>5</td>
<td>Cross-Validation and Prediction Purpose and routine of Cross-Validation; Prediction Uncertainty; Data QC; Leverage; Auto pre-processing</td>
<td>1.5</td>
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<tr>
<td>6</td>
<td>Classification SIMCA; PLS-DA; Applications in raw material ID, Quality surveillance</td>
<td>2.5</td>
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<td><strong>Day 3 (8:30 am – 3:30 pm)</strong></td>
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<td>7</td>
<td>Introduction to Design of Experiments DoE approaches for Critical factor identification and Design space; Application in process understanding and optimization</td>
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<td>8</td>
<td>Real-time Process Monitoring Introduction to On-line Prediction/Classification software suites, Traceability and Security</td>
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<tr>
<td>Workshop</td>
<td>Extra exercises or analysis of your own data</td>
<td>3</td>
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</table>

The Unscrambler v9.7 is required and will be provided for everyone in the class. Please bring your own laptop.
Cost:

3–Day Public Training Course:

$1,850/ person (10% discount for CAMO AS&U Members, $1,650)

About your Instructors:

Dongsheng Bu, Ph. D. – Camo Software Inc., Principal Scientist, Chemometrician, Spectroscopy expert and Statistician

Dr. Dongsheng Bu, Principal Scientist; joined CAMO Software Inc. in March 2004. He is deeply involved in Product and Features development for CAMO’s product line. Dr. Bu also serves as CAMO’s Senior Course Instructor, teaching Multivariate Analysis I and II and Experimental Design. He also manages CAMO’s North American Customer Support program. Dr. Bu obtained his Ph.D. in Analytical Chemistry from the University of Rhode Island in 2000, where he developed a PCA based Multivariate Curve Resolution algorithm and spectroscopic methods for chemical sensor development. Dr. Bu has more than 16 years of experience in Spectroscopic Analytical Techniques and Applications Development, Advanced Chemometrics and multivariate statistical modeling. Prior to joining CAMO, Dongsheng worked as a Senior Scientist at Argose, a Medical device company, developing noninvasive glucose monitoring devices. He was an Engineer in the Shanghai Institute of Ceramics, Chinese Academy of Science.
Accommodations:

CAMO received a special daily rate at the Sheraton at Woodbridge Place Hotel - $145/night
515 US Highway 1 South, Iselin, New Jersey 08830
Phone: (732) 634-3600

Fairfield Inn & Suites Woodbridge - $129/night
1295 Route 1 South, Avenel, New Jersey 07001
Phone: (732) 396-9700

Hampton Inn Woodbridge, NJ
370 Route 9 North
Woodbridge, New Jersey, 07095
Tel: +1-732-732-855-6900
Fax: +1-732-732-855-1707

Comfort Suites at Woodbridge (NJ718)
1275 Route 1 & 9 South
Avenel, NJ, US, 07001
Phone: (732) 396-3000   Fax: (732) 396-3498

Hilton Woodbridge
120 Wood Avenue South
Iselin, New Jersey, United States 08830-2709
Tel: 1-732-494-6200   Fax: 1-732-603-7777

Training Location:

Camo Software, Inc
One Woodbridge Center Drive
Suite 319
Woodbridge, NJ 07095

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