



ATP³ Workshop
Fall 2016



**Large-Scale Algal Cultivation, Harvesting
and Downstream Processing**

November 7-11, 2016
at AzCATI, Mesa, AZ



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Large-Scale Algal Cultivation, Harvesting and Downstream Processing



When: November 7-11, 2016

Where: AzCATI
 ASU Polytechnic Campus
 7418 Innovation Way South
 ISTB-3 Room 103
 Mesa, Arizona 85212

Instructors: Tom Dempster (AzCATI, ASU)
 Milton Sommerfeld (AzCATI, ASU)
 Schonna Manning (UTEX, UT-Austin)

Cost: \$1600 (includes training, materials and 3 lunches)

This workshop will cover practical applications of growing and managing microalgal cultures at production scale, including methods for handling cultures, screening strains for desirable characteristics, identifying and mitigating contaminants, scaling up cultures for outdoor growth, harvesting and processing technologies, as well as the analysis of lipids, proteins and carbohydrates. Related laboratory and field training will include numerous hands-on opportunities for participants to collect and perform routine sample measurements, monitor cultures for contaminants, and evaluate the chemical composition of algal biomass.

This workshop is ideal for those interested in obtaining a broad overview of the management of microalgal cultures at scale, and for advanced students and trainees interested in the practical applications of microalgae. Participants are encouraged to ask questions, share information and network. Printed and electronic materials will be included, and a certificate of completion will be provided at the conclusion of the workshop. Workshop enrollment is limited to 15 participants and will be filled on a first-come basis.

ATP³ workshops offer a diverse range of topics pertaining to the management and processing of microalgal cultures, and uses of their products. Laboratory and field training are led by highly-trained scientists and engineers. For more information about this and future workshops please visit www.atp3.org/education.

Tentative Agenda

Day 1: November 7 (1 pm – 5 pm)

Overview of ATP³, AzCATI and UTEX
 Tour of AzCATI Laboratory and Testbed
 Introduction to Microalgae

- Lab Activities: using the light microscope to observe diverse microalgae

Day 2: November 8 (8 am – 5 pm)

Practical Applications: Products and Bioremediation

Culture Monitoring and Mitigation of Contaminants

Comparison of Cultivation Systems

Principles of Scaling Up Cultures

- Lab Activities: field sampling from open ponds and panel reactors; microscopy of field samples; evaluating culture dry weight (DW); measuring optical density (OD) and growth rates; handling and scaling-up cultures

Day 3: November 9 (8 am – 5 pm)

Outdoor Culture Maintenance and Monitoring

Harvesting and Dewatering Techniques

Overview of Biomass Processing Methods

- Lab Activities: measuring ash-free DW; overview of harvesting, dewatering and processing instrumentation

Day 4: November 10 (8 am – 5 pm)

Screening Strains for Desirable Characteristics

Routine Biochemical Analysis

Mass Balance

- Lab Activities: analysis of biomass carbohydrates and proteins; extraction and analysis of lipids using thin-layer chromatography; introduction to data entry and graphical analysis

Day 5: November 11 (8 am – 11 am)

Data Analysis and Discussion of Results

Sources of Current Industry Information

Workshop Conclusion and Distribution of Certificates