



## ATP<sup>3</sup> Workshop Summer 2013



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AzCATI

Arizona Center  
for  
Algae Technology and Innovation



UTEX The Culture Collection of Algae  
at The University of Texas at Austin

Algal Culture Management  
and Strain Selection

August 19-23, 2013  
University of Texas at Austin

Contact Us:  
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## Algal Culture Management and Strain Selection



**When:** August 19-23, 2013

**Where:** UTEX Culture Collection of Algae  
 The University of Texas at Austin  
 T. S. Painter Hall  
 2391 University Avenue  
 Austin, TX 78705

**Instructors:** Jerry Brand (UTEX), Milton Sommerfeld (AzCATI)  
 Tom Dempster (AzCATI), Schonna Manning (UTEX)

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

The ATP<sup>3</sup> workshop, “Algal Culture Management and Strain Selection”, will take place the week of August 19-23, 2013 at The University of Texas at Austin. Presentations will cover the fundamentals of isolating and identifying microalgae, handling and managing microalgal cultures (including methods for cryopreservation), screening strains for desirable characteristics, genetically improving strains, and analysis of lipids and higher-value products.

This workshop is designed for participants interested in the practical applications of algae, as well as advanced students and trainees who would like to obtain a comprehensive overview on the laboratory cultivation and analysis of microalgae. Workshop modules will include hands-on opportunities to collect field samples (bioprospecting), perform sample measurements, monitor cultures for contaminants, and analyze the chemical composition of algal biomass.

Participants are encouraged to ask questions, share information with the group, and network. Printed and electronic materials will be provided, and a certificate of completion will be received at the conclusion of the workshop. Workshop enrollment is limited to 15 participants and will be filled on a first-come basis.

ATP<sup>3</sup> 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](http://www.atp3.org).

### Agenda

#### Day 1: August 19 (1 pm – 5 pm)

Overview of ATP<sup>3</sup>, AzCATI and UTEX  
 Introduction to Microalgal Diversity  
 Practical Applications: Products and Bioremediation

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

#### Day 2: August 20 (8 am – 5 pm)

Techniques for Handling and Maintaining Cultures  
 Methods for the Cryopreservation of Microalgae  
 Measuring Culture Densities and Growth Rates

- Lab Activities: handling microalgae (including transferring for inoculation); measuring culture densities by dry weight (DW), cell counts, and optical density (OD); determining growth rates; and cryopreservation demonstration

#### Day 3: August 21 (8 am – 5 pm)

Sources of Cultures: Culture Collection vs. Bioprospecting  
 Methods for Identifying Microalgae  
 Screening for Desirable Characteristics  
 Methods for Genetically Improving Strains

- Lab Activities: field collections and analysis by microscopy; isolation techniques; strain selection; DW and OD measurements

#### Day 4: August 22 (8 am – 5 pm)

Biochemical Characteristics of Algae  
 Methods for Analyzing Microalgal Lipids  
 Methods for Analyzing Proteins and Carbohydrates

- Lab Activities: extracting lipids from biomass; thin-layer chromatography of extracts; fluorescence microscopy (chlorophyll and neutral lipids); ash-free DW and OD measurements

#### Day 5: August 23 (8 am – 11 am)

Data Analysis and Discussion of Results  
 Principles of Scaling Up Cultures  
 Workshop Conclusion and Distribution of Certificates