

# Algae Biotechnology Science

## Specialized Certificate

### About the Program

Algae biotechnology research and development in the San Diego region constitutes an increasingly robust cluster of economic activity and employment opportunities. With the ability to use algae to create a wide range of photosynthetic-based bio-products, the algae biotechnology sector is set to grow at a quick pace.

The Algae Biotechnology Science Certificate is aimed at training professionals for field and laboratory roles in the algae biotechnology and biomass production industry, including analytical chemistry, microbiological/crop management, and biological/biofuels lab techniques. It provides students hands-on technical knowledge and experience in laboratory techniques used in biomanufacturing processes, analysis and quality controls.

### Customize Your Learning

Students will have the option of choosing from one of two specialization tracks.

- Molecular Biology**  
 This track focuses on molecular biological techniques with an emphasis on molecular engineering for the improvement of algae for biofuel/bioproduct production, and will also cover aquatic microbiology.
- Analytical Chemistry**  
 This track focuses on chemical analysis of biomolecules, including proteins and small molecules, downstream processing of precursors into final products, specifications and methods required to maintain quality in manufacturing, and hands-on experience in the analytical methods used to characterize bioproducts.



### Certificate Course Requirements

#### Required Core Courses

Three courses are required.

- Algae Biotechnology\*
- Algae Biomass Production\*
- Algae Biomass Production Lab\*\*

#### Track Courses

Choose one track and complete the courses.

##### Molecular Biology

- Genetics and Physiology of Photosynthetic Microorganisms\*
- Photosynthetic Microorganisms Molecular Biology Laboratory\*\*

##### Analytical Chemistry

- Chemistry and Biochemistry of Renewable Fuels and Chemicals\*
- Analytical Chemistry Laboratory\*\*

\*Online format available.

\*\*Laboratory courses are offered during the Summer quarter (July) on UC San Diego's campus.



#### Information:

Angeline Yang | (858) 534-9351 | avyang@ucsd.edu  
[extension.ucsd.edu/algaebiotech](http://extension.ucsd.edu/algaebiotech)

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