



*Excellence and innovation in
contemporary bioscience
education.*



ALGAL BLOOMS: AN ECOLOGICAL INVESTIGATION USING MOLECULAR TECHNIQUES

This program explores a scenario of an algal bloom in the waterway on a farmer's property.

Students assume the role of ecologists who analyse the biological, chemical, and physical parameters of the ecosystem to determine what has caused the bloom. They are presented with water samples from the river upstream of the farmer's property, adjacent to the farmer's property, and from the bloom site.

Students use microscopy and dichotomous keys to identify the microalgae, determine the bloom-forming organism, and estimate population density of the microalgae at the three sites. Molecular techniques (quantitative PCR and gel electrophoresis) are used to detect whether the bloom-forming species is present at all three sites or introduced to the bloom site and to come up with an alternative estimate of population density.

Students then analyse the water chemistry of the three sites, examining pH and nutrient concentrations. Finally, they examine data for physical conditions at each of the three sites to assess how the algal bloom was caused by a combination of natural and human-induced conditions.



Program features:

- Lecture on ecological principles.
- Pre-laboratory lecture on experimental techniques.
- Laboratory tasks guided by a scientist mentor.
- Introduction to DNA Science.
- Lunch at the University of Melbourne.
- Follow up classroom work.

Scheduling: Terms 1 and 4

YEAR LEVEL: UNIT 2 VCE BIOLOGY
BOOKING CODE: VCE 201
STANDARD RATE \$25-00/STUDENT

Contact Administrative Assistant for booking enquiries :
E-mail : gtac@gtac.edu.au or Phone 03 9340 3600