

## **DNA FINGERPRINTING WORKSHOPS IN COLUMBUS PUBLIC HIGH SCHOOLS**

This is a service-learning course in which undergraduates present molecular biology workshops in Columbus Public Schools. The program has been in operation since 1999 and has proved beneficial to both the OSU undergraduates and the high school students they serve.

Each workshop is two sessions. In session one, we set the scene for the workshop by showing a short video in the style of the popular TV show- 'The X files'. In the 'DNA files', a high school student's science project is sabotaged and there are four suspects with various motives. Traces of blood and hair are left at the crime scene. The high school students, guided by their OSU mentors, become forensic scientists and solve the mystery by restriction analysis of DNA from the crime scene and each of the four suspects. The OSU students train the high school students in the use of equipment and lead them through a gel electrophoresis experiment to separate the DNA molecules by size. The gels stain over night to allow visualization of the DNA. In session 2, we analyze the results of the DNA gels to solve the 'crime', discuss how development in genetics (such as the human genome project and DNA testing) will influence society, and talk about college and careers.

Multiple workshops are offered so that OSU students can find time slots that fit with their class schedule.

### **Requirements:**

- Attend practice session to learn background material and how to run experiments (~2 hours)
- Pre-workshop reagent preparation (~2 hours)
- Participate as team leader in 4 workshops- (8 sessions) (~14 hours including travel time)
- Provide feedback on all aspects of training and workshop (~2 hours)

### **Student learning outcomes**

It is expected that students will:

- receive training and experience in molecular biology
- function as a team leader and teacher
- share expertise in the field with others
- gain satisfaction through community service

### **Off campus field experience**

All workshops occur off campus in local high schools and carpooling is required.

### **Evaluation**

Grading will be S-U

Completion of all aspects of the course is expected. Of particular importance is evidence of commitment demonstrated by full participation and attendance at each selected workshop. Leadership and mentoring skills will be emphasized.