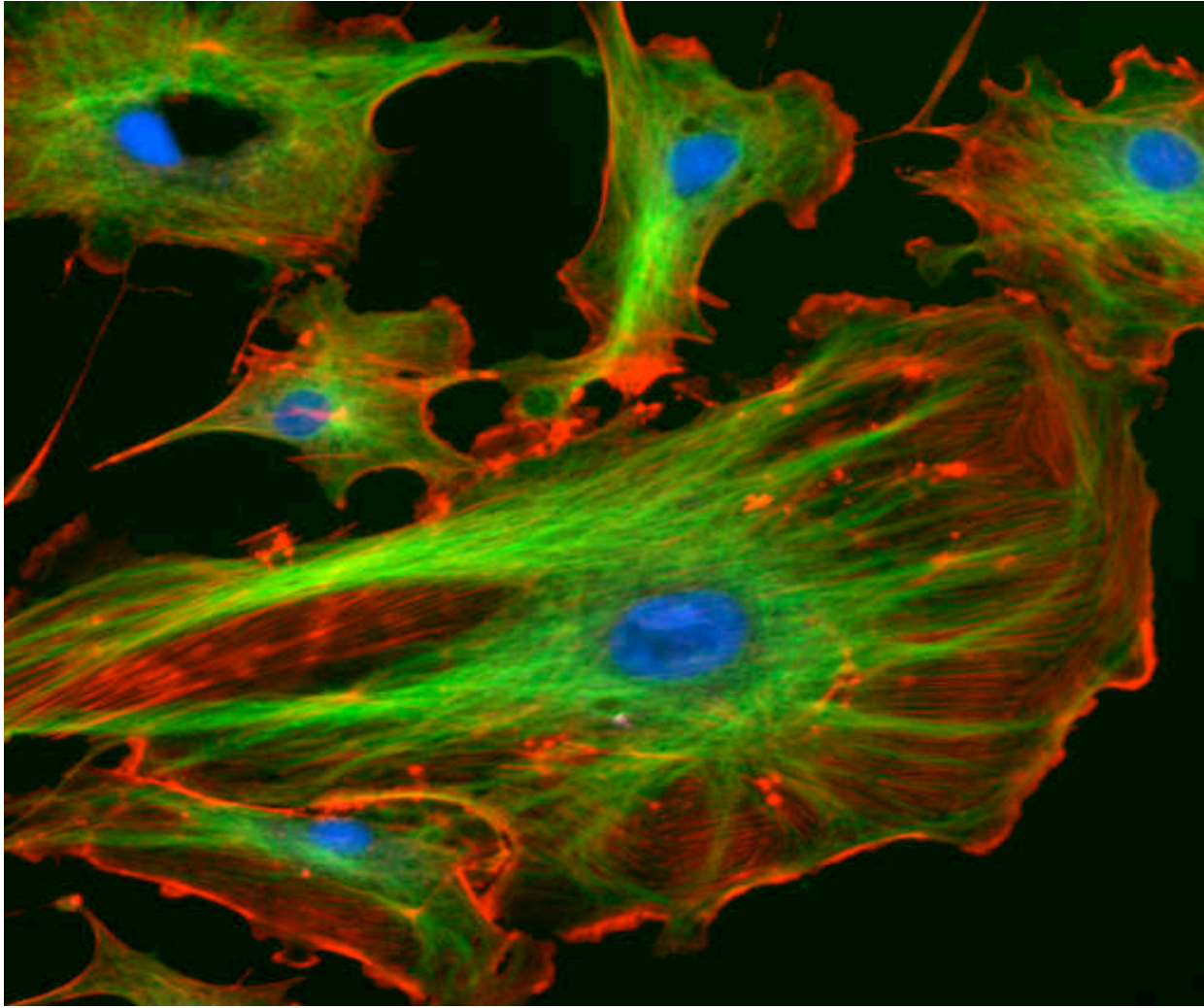


# Penn State Biology Core Courses

## BIOL230W: Molecules and Cells



BIOL230W is the core biology course involved with exploring cellular phenomena including molecular genetics and metabolic interactions. The goal of this course is to provide an understanding of the major unifying principles of life as they apply to the molecular mechanisms underpinning the function of organisms. Students also gain an understanding of current molecular biology techniques.

### Example Laboratory Exercise:

## Isolation and Analysis of DNA using Polymerase Chain Reaction

Our genes provide the instructions to synthesis proteins that control all the reactions in our bodies. Recombinant DNA techniques allow biologists to clone and study genes from a variety of organisms. These genes may be used to study protein function or, potentially, in medical advances and genetic therapy. In this lab, students learn recombinant DNA techniques including:

- Isolation of plasmid DNA from *E. coli* bacteria
- PCR to amplify the gene located in the plasmid
- Gel electrophoresis to determine the size of the gene
- Genetic sequencing at the Penn State Nucleic Acid Facility to identify the gene

