

**University of Hawaii at Manoa  
John A. Burns School of Medicine  
Dr. Katalin Csiszar**

**Course Number:** Biomed 644

**Course Title:** Bioanalytic Methods in Clinical Research

**Course Credit:** 2 credits

**Prerequisite:**

Permission of Instructor

**Placement in Curriculum:**

Second Year of Program

**Course Description:**

This course will provide training in concepts and techniques in molecular biology and molecular genetics. Topics will include an introduction to the molecular genetics of human diseases, methods to identify and map candidate genes, approaches to the analysis of mutations and the use of markers to study polymorphisms, evaluations of gene and protein expression using Northern, RT-PCR, real time PRC assays and Western blots. Bioanalytic Methods will also cover methods for collection, preparation and analysis of representative tissue and body fluid specimens, including the extraction of DNA, RNA and proteins. Potential applications of patient skin fibroblast cell cultures will be evaluated. Special emphasis will be given to qualitative and quantitative analysis

**Learning Outcomes:**

At the conclusion of the course student will be able to:

Apply selected concepts and techniques in molecular biology to the investigation of clinical research problems

Apply concepts from molecular genetics to the investigation of clinical problems

Evaluate the application of fibroblast cell cultures to the investigation of clinical research problems.

**Topical Outline:**

The molecular genetics of human diseases

Identification and mapping of candidate genes

Approaches to the analysis of mutations and the use of markers to study polymorphisms

Evaluation of gene and protein expression using Northern, RT-PCR, real time PRC assays and Western blots

Methods for collection, preparation and analysis of representative tissue and body fluid specimens, including the extraction of DNA, RNA and proteins

**Required Text:**

Assignments will be made from the serials literature dependent on searches reflecting the student individual area of inquiry

**Learning Experiences:**

Lecture, discussion, practicum

**Evaluation**

Examination	30%
Project	70%