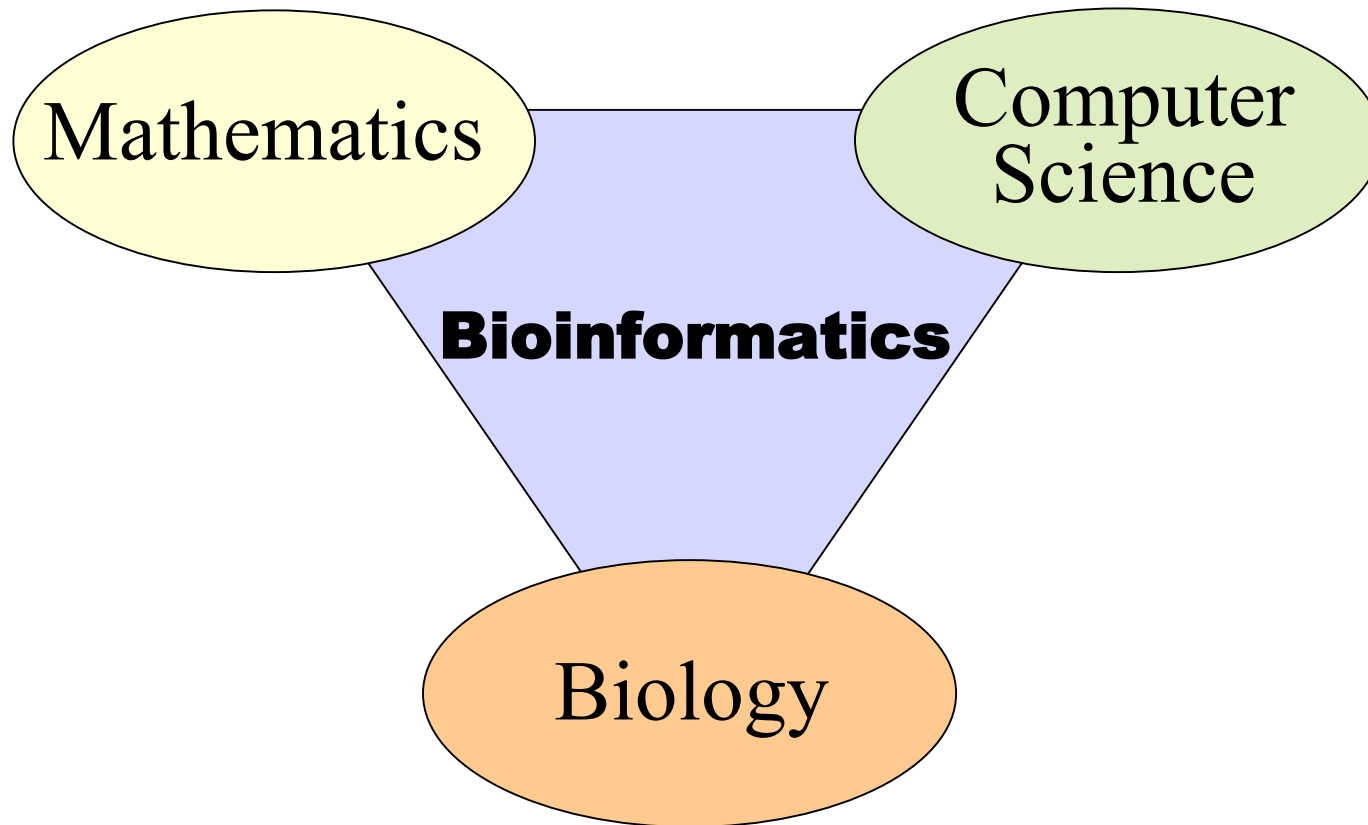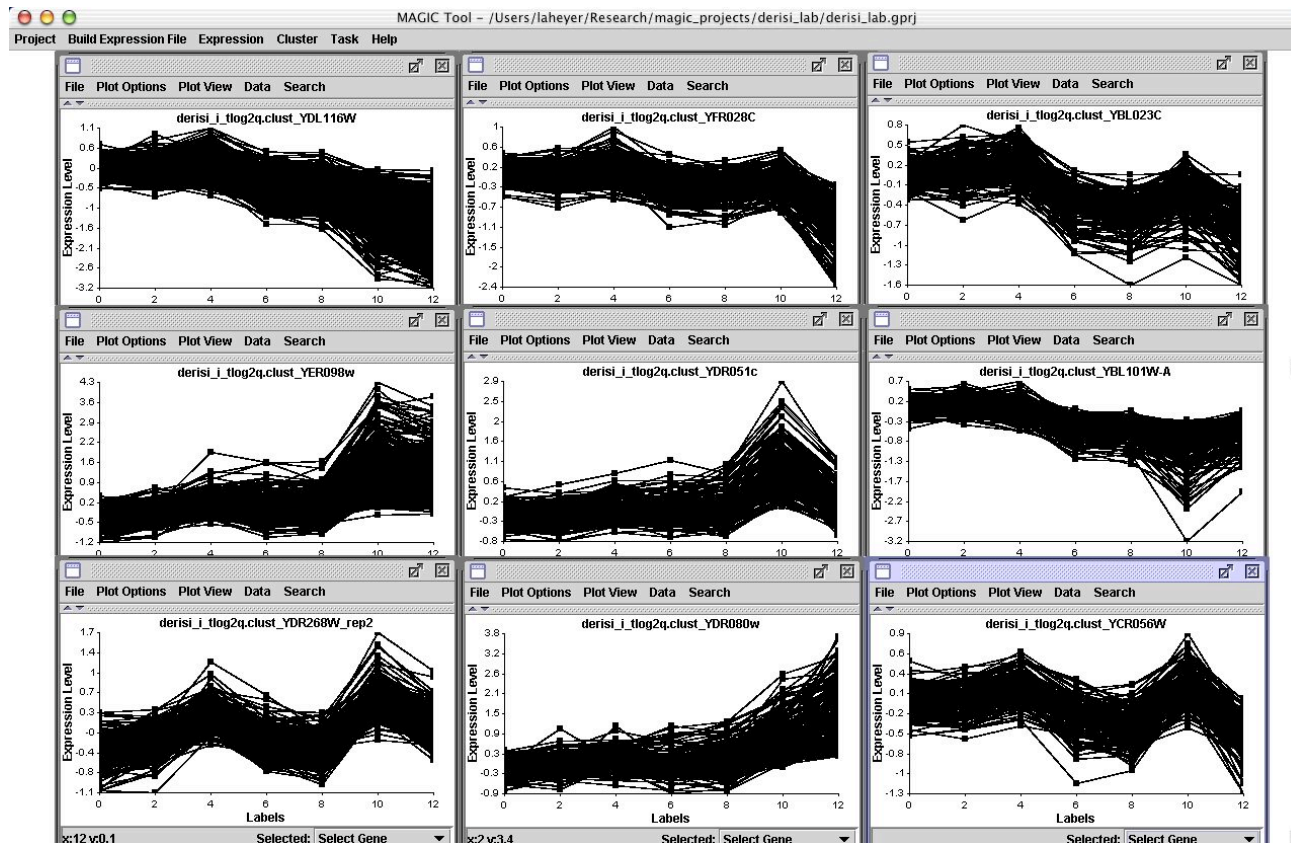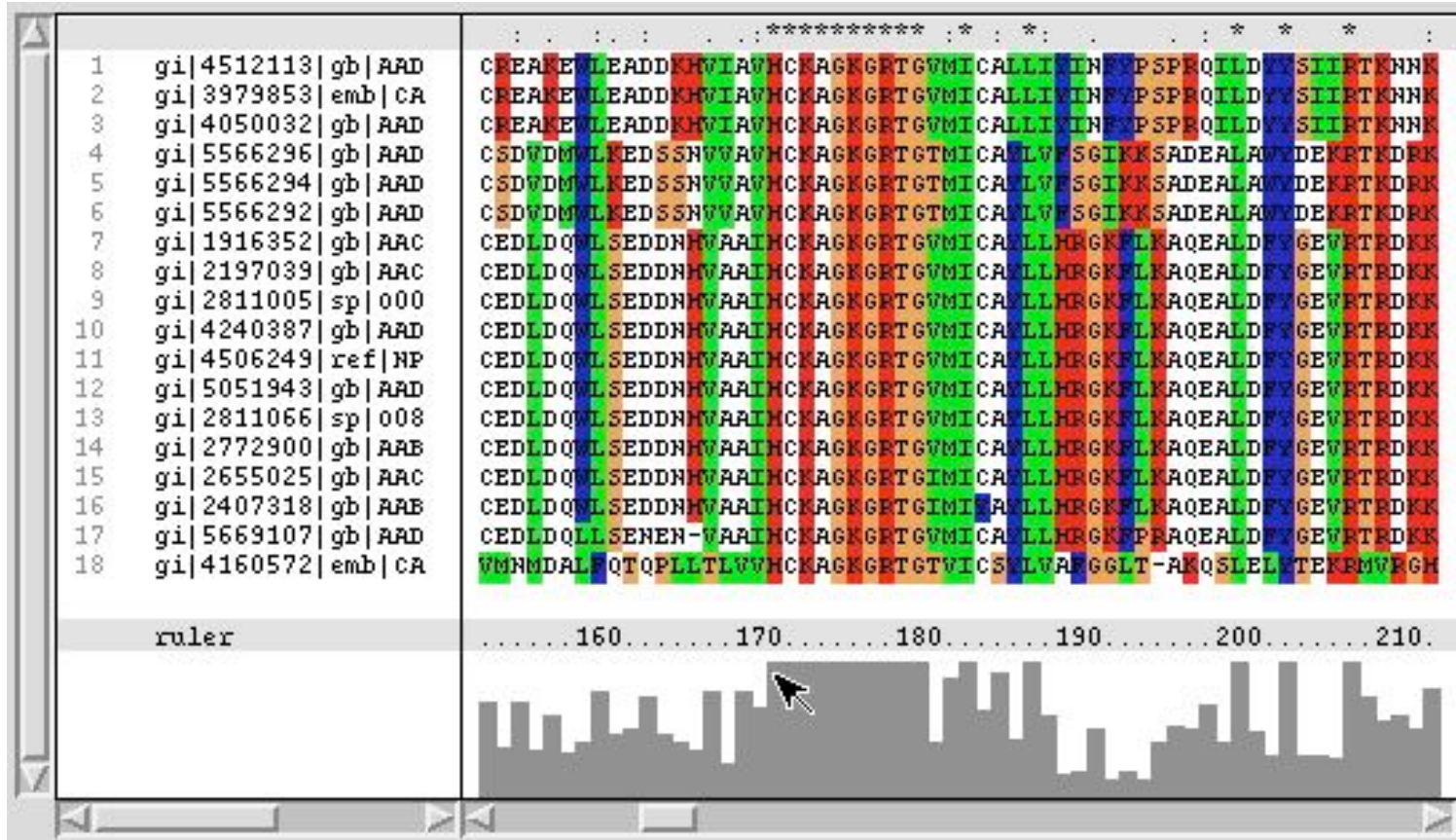# What is Bioinformatics?

What is Bioinformatics?

(1) the development of new algorithms and statistics with which to assess relationships among members of large data sets
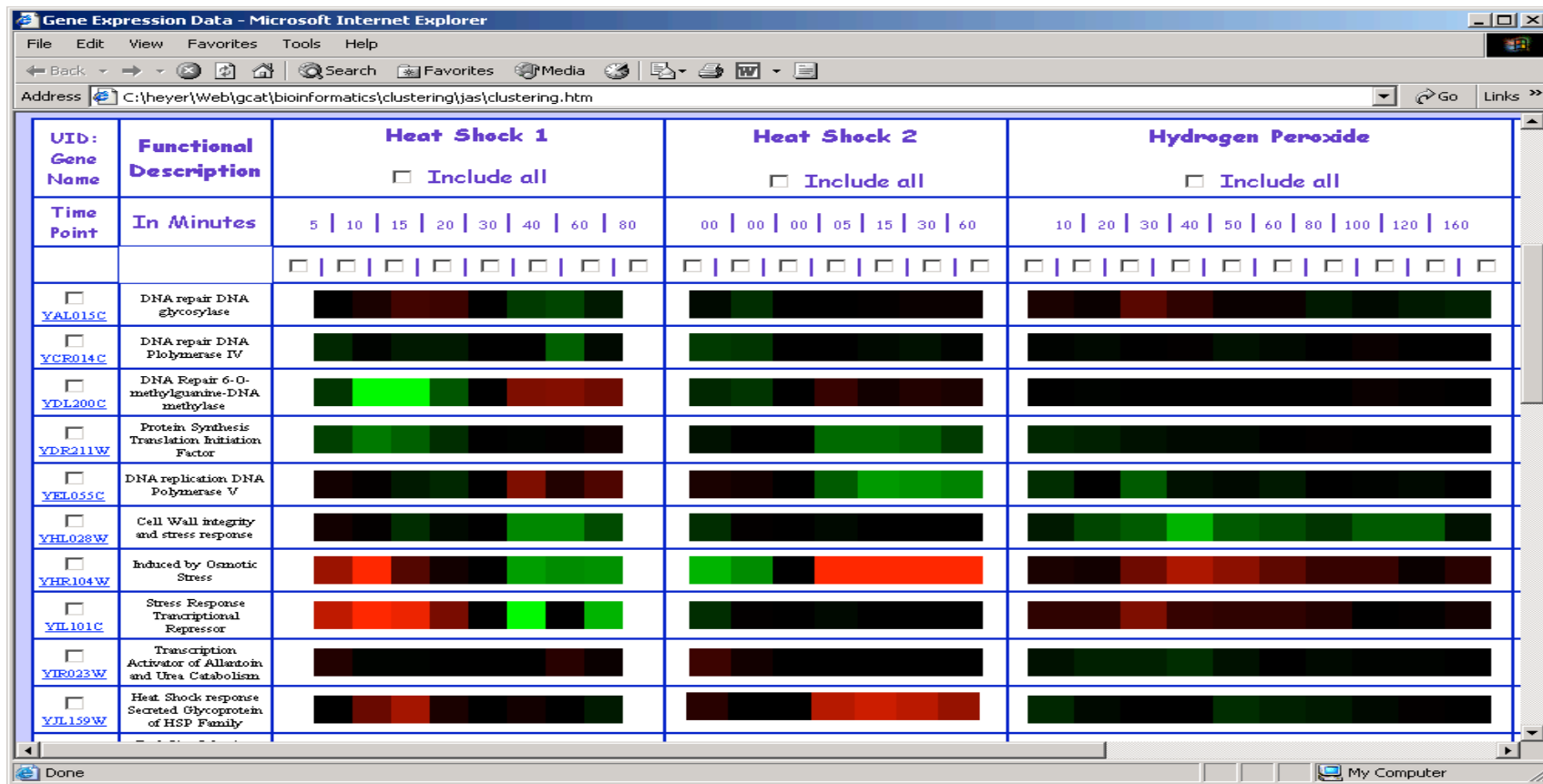
What is Bioinformatics?

(2) the analysis and interpretation of various types of data including nucleotide and amino acid sequences, protein domains, and protein structures

What is Bioinformatics?

(3) the development and implementation of tools that enable efficient access and management of different types of information.

Who Uses Bioinformatics?

NIH

Molecular biologists

Homeland Security

National labs
   - Oak Ridge, LLNL,
      LBNL, LANL, Argonne

Biomedical researchers

Biotechnology companies

Pharmaceutical companies

AT&T Bell Labs

Cold Spring Harbor Lab

Where can you learn more about Bioinformatics?

Davidson: BIO / CSC 310 (Bioinformatics)

Missouri Western: BIO 331 Bioinformatics

What is a biostatistician?

"Biostatisticians and epidemiologists apply statistical theory and techniques to the evaluation and development of health programs. Professional biostatisticians collect and analyze biological, social, and environmental data, design experiments and observational studies, use computer operating systems to analyze information, develop new methods to study and compare population groups, and prepare probabilistic statements.

Most biostatisticians work in the biotech industry, for pharmaceutical companies, in research organization, in managed care companies, or as teachers in schools of public health, medicine, or math or statistics departments. Some biostatisticians also hold positions in Federal government agencies, such as the Centers for Disease Control and Prevention (CDC), National Institutes of Health (NIH), and Food and Drug Administration (FDA), or in Local and state health departments."

from the *Princeton Review*

Actual Job Posting – CyberScientific (Boulder, CO)

Clinical Biostatistician - Biopharmaceutical - Colorado

We are focused on the discovery, development and commercialization of targeted small molecule drugs to treat debilitating and life-threatening diseases. Our drug development pipeline is focused on the treatment of cancer and inflammatory disease and includes clinical candidates that are designed to regulate therapeutically important targets. We also have leading pharmaceutical and biotechnology companies collaborate with us to discover and develop drug candidates across a broad range of therapeutic areas.

Description:

* Project-manage all study team activities within Biostatistics according to agreed resource and timeline plans
* Create statistical text for study concept documents and protocols (study design, endpoints, sample size, methods for analysis)
* Review and approve randomization specifications
* Create statistical analysis plans
* Create templates for tables, listings and graphs
* Review and approve SDF dataset specifications

Actual Job Posting – Biostatistician (Ridgefield,CT)

Smith Hanley Consulting Group has an opportunity available for a Biostatistician.

Job Description:

The Statistician will support phase II studies in the CNS and Internal Medicine area. Specific work will include developing statistical analysis plans and programming specifications, working with programmers to implement the planned analyses, validating SAS output, supporting Data Monitoring Committee activities, performing adhoc analyses to facilitate decision-making. Working with clinicians and medical writers to complete study reports.

Actual Job Posting – Biostatistician (Ridgefield,CT)

Job Description:

Biostatistician will be responsible for writing data sets, protocols, validating programming (SAS STAT and PROC). Looking for someone who has been a Trial Statistician – NOT looking for a PROGRAMMER!

Requirements:2+ (as a Trial Statistician).

Previous experience with clinical trial protocol development, statistical analysis plan preparation, report preparations as the statistician on a clinical trial team.

•Proven ability to perform statistical analysis, SAS programming, programming validation, quality control (QC) in the context of clinical trials.

•Must have theoretical understanding of the statistical process.

•Experience with submission to FDA.

Actual Job Posting – UW-Madison

This is an opportunity to become a member of a professional team working on exciting new projects in Medical Informatics. The Department of Biostatistics and Medical Informatics in the UW-Madison School of Medicine and Public Health is recruiting for an experienced DATABASE ADMINISTRATOR to join the database section of the department's Biomedical Computing Group (BCG).

The database section designs and implements solutions for clients conducting clinical and other health research. This includes data acquisition solutions, data and process management, quality assurance and data extraction. Duties will include design and development of database applications, the installation and maintenance of Oracle software and the ONCORE Clinical Trial Management system, along with monitoring error logs, database space, user activity, resource utilization and occasional restoration of database tables and instances. A bachelor's degree is required.

The Biomedical Computing Group (BCG) is a team-oriented environment providing client-driven solutions to the School of Medicine and Public Health research community. Application areas include Clinical Trial Management, parallel computing, web and database development projects, network, security and desktop computing. The BCG offers a casual and flexible work environment in a technically challenging collaborative atmosphere. The University offers an exceptional work environment, including a superior benefits package.

Lots of Opportunities

Mathematics departments are on the look out for mathematicians well versed in biology. "You get mathematicians who don't really know much biology, or biologists who don't know much math. It's not so easy to find a mathematician who is trained well enough in biology to talk to biologists and be taken seriously. I see a big opportunity there in the foreseeable future."

-- Reinhardt Laubenbacher

Virginia Biotechnology Institute (VBI)