

# What is genomics?

Steven Salzberg

**What is genomics?**

Oxford Dictionaries:

“The branch of molecular biology concerned with the structure, function, evolution and mapping of genomes.”

“The branch of molecular biology concerned with the **structure**, function, evolution and mapping of genomes.”

what is the biochemical sequence of the genome  
and what are its physical properties?

Oxford Dictionaries:

“The branch of molecular biology concerned with the structure, **function**, evolution and mapping of genomes.”

**what does all the DNA do?**

“The branch of molecular biology concerned with the structure, function, **evolution** and mapping of genomes.”

how do sequences change over  
evolutionary time?

“The branch of molecular biology concerned with the structure, function, evolution and **mapping** of genomes.”

where are the genes and other  
interesting bits?

How is genomics used?



Collins English Dictionary:

“The branch of molecular genetics concerned with the study of genomes, specifically the identification and sequencing of their constituent genes and **application** of this knowledge in **medicine**, **pharmacy**, **agriculture**, etc.”

How is genomics different from standard biology?

# Biology & Genetics

# Genomics



Targeted studies of one  
or a few genes

scope

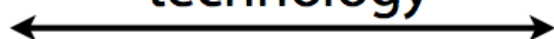
Studies considering all  
genes in a genome



Targeted,  
low-throughput  
experiments

technology

Global,  
high-throughput  
experiments



Clever experimental  
design, painstaking  
experimentation

hard part

Tons of data,  
uncertainty,  
computation

