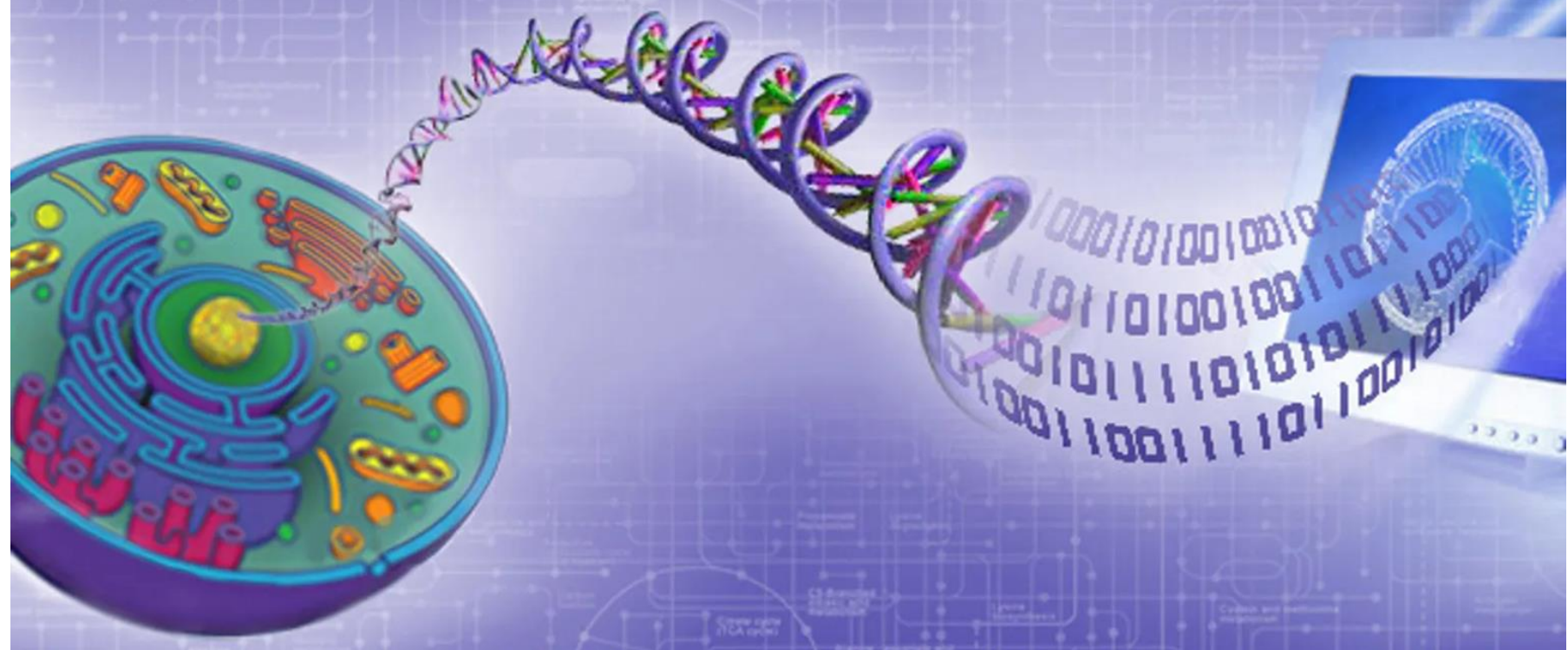


# 2020 Summer Rome Bioinformatics Course



Dr Toby  
UD Biology Department

# Bioinformatics



# Converting biological questions ...

Massive  
amount of data  
and data types:  
genetics, text,  
biochemical,  
imaging, etc.



Hospitals  
and clinics



Research  
institutes



Private  
sector



International  
institutions

Life sciences and health actors

## ... into answers

with various applications



Basic research



Medicine



Environmental  
sciences



Agriculture

- Protein Sequences
- Nucleotide Sequences
- Structural Data
- Genomics and Proteomics



Data management  
planning



Secure computing and  
storage infrastructure



Databases and  
software tools



Cutting-edge analyses  
and research

Dedicated multidisciplinary experts

Tailoring  
treatment to cancer  
patients

Understanding  
how chameleons  
change colour

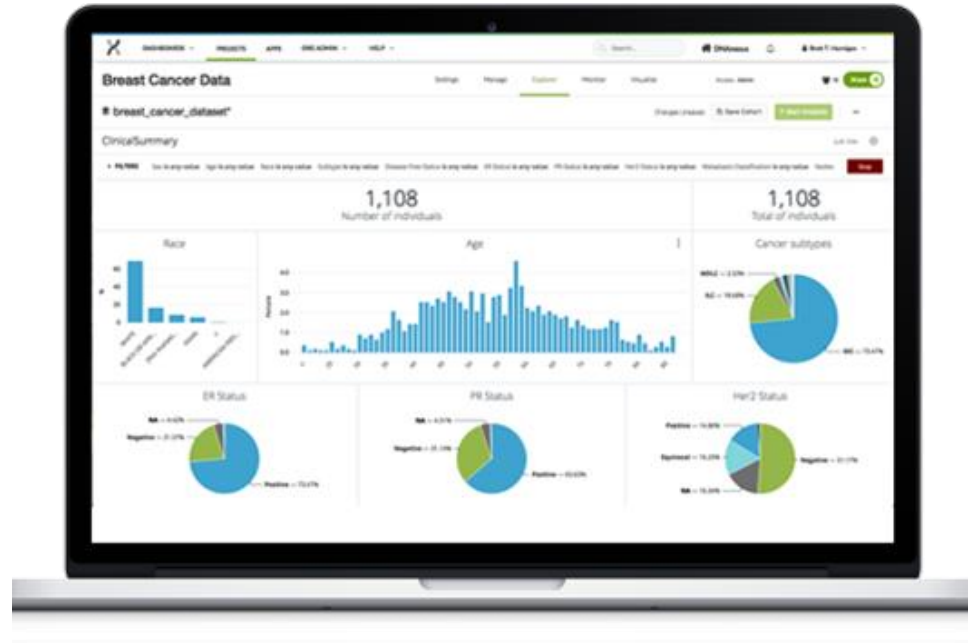
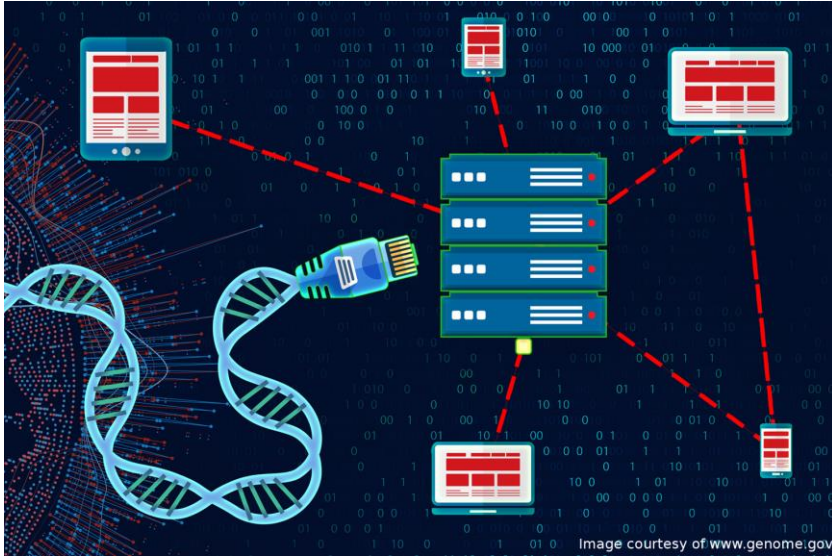
Predicting  
the spread  
of bird flu



How is Bioinformatics utilized beyond the  
classroom?








- DNAnexus, the global leader in biomedical informatics and data management, recently announced **DNAnexus Apollo**, an enhanced platform for clinico-genomic data science exploration, analysis, and discovery.
- Working with clinical data requires specialized capabilities to maintain privacy; DNAnexus Apollo offers a robust features and maintains compliance with HIPAA and CLIA among others.

# Other Examples

- Pharmaceutical Industry
- Genetic Diseases
- Plant pathology
- Criminal investigations (Forensics)
- Food supply (Genetic engineering)



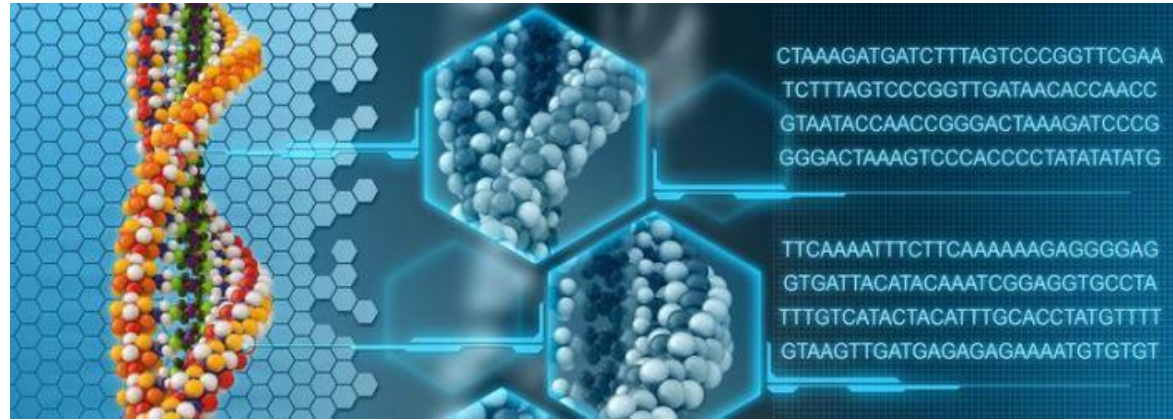
What is the time commitment for this  
program?



# 2 weeks, 10 lectures

## Schedule at a glance

- Lecture- 10am-12noon
- Coffee breaks,  
Snacks/Food
- Afternoon Computer  
Lab-
- 12:00-2:30pm (Flex-time  
to work interact with  
fellow students)
- Weekends are free!





# Outline of Lecture Topics

- ❖ Web Resources
- ❖ Analysis and integration of “omic” and “high-throughput” data
- ❖ Protein sequences
- ❖ Protein structure prediction
- ❖ Drug Design: I want a new drug!
- ❖ Molecular dynamics simulations

# Highlights

- Sapienza University is one of the most prestigious universities in the world
- One of the largest universities in Europe
- Highly ranked across disciplines
- Among top 3% of universities in the world
- 10 Masters Programmes taught entirely in English



# Housing at Sapienza University



# On-site Amenities





# Dining and Exploring





# Program Estimated Costs

\$1650- Course tuition (from UD)

\*\$2200- Room, board and transportation

\*Plus Airfare



**Join us online @**

<https://github.com/initoby/UDRomeBioinformatics>