

Glossary of less known terms used in this course

- **Amino acids:** the subunit molecules that form proteins
- **Antibody:** a protein produced by the host immune system that recognises an antigen and triggers an immune response
- **Antigen:** a molecule or particle that can trigger an immune response
- **COVID-19:** coronavirus disease 2019
- **cDNA:** complementary DNA, a DNA molecule synthesised from an RNA template molecule
- **CDC:** Centers for Disease Control and Prevention, based in the United States
- **Cladogram:** it is a graphic representation of the ancestry relationship between organisms
- **Codon:** a group of three nucleotides that encode an amino acid
- **DNA:** deoxyribonucleic acid, an information molecule forming the “base code” for a living organism
- **ECDC:** European Centre for Diseases Prevention Control
- **Endemic:** it refers to a disease that is prevalent in or restricted to a particular location, region, or population
- **Epidemic:** it is an increase in the expected number of cases of a disease in a particular population and area
- **Immune response:** a reaction from the organism to defend itself against a threat
- **mRNA:** messenger RNA, the template for protein production
- **NGS:** next-generation sequencing, a high throughput sequencing methodology
- **Nucleotides:** the subunit molecules that form DNA and RNA molecules

- **Outbreak:** it is a sudden increase in the expected number of cases of a disease in a limited area
- **Pandemic:** it refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people
- **Pathogen:** a microorganism or infectious agent that can cause disease e.g virus, bacterium, protozoan, prion or fungus
- **PCR:** Polymerase Chain Reaction, a technique to amplify DNA molecules
- **Phylogenetic tree:** is a graphic representation of ancestry relationships, like a cladogram, but taking into account inferences on the genetic code similarities between the organism involved in the analysis
- **PPE:** personal protective equipment, devices used to protect a person against risks to their health
- **Polymer:** a chain of molecules or a large molecule composed of many repeating subunits
- **Replication:** viral replication is the mechanism to generate new viruses during the infection, it is the process of virus multiplication
- **Real-time PCR:** A PCR method that uses fluorescent dye labels to detect and quantify copies of DNA during the amplification process.
- **Reverse transcription:** the process of synthesising a cDNA molecule from a template RNA using the enzyme reverse transcriptase.
- **RNA:** ribonucleic acid, an information molecule, can be the “base code” for viruses.
- **RT-qPCR:** Reverse Transcriptase Quantitative PCR, also known as reverse transcriptase real-time PCR. A PCR method to quantify RNA copies present in a sample; includes

a step to synthesise cDNA from the template RNA before the PCR amplification.

- **SARS-CoV-2:** Severe acute respiratory syndrome coronavirus 2
- **Sequencing:** the process of “reading” genomic material such as DNA or RNA
- **Taxon (plural taxa):** in biology, is a unit that represents one organism, a group of organisms or a population that shares similar characteristics
- **Tagmented/Tagmentation:** A method of fragmenting DNA while adding a “tag” of nucleotides that can be tracked in analysis
- **Viral variant:** a virus that has one or more mutations in its genome
- **VOC:** variant of concern, according to [WHO](#) it is a SARS-CoV-2 variant which meets the definition of a VOI and that has been demonstrated to be associated with one or more of the following changes at a degree of global public health significance: a) increase in transmissibility or detrimental change in COVID-19 epidemiology; or b) increase in virulence or change in clinical disease presentation; or c) decrease in the effectiveness of public health and social measures or available diagnostics, vaccines and therapeutics
- **VOI:** variant of interest, according to [WHO](#) it is a SARS-CoV-2 variant a) with genetic changes that are predicted or known to affect virus characteristics such as transmissibility, disease severity, immune escape, diagnostic or therapeutic escape; and b) identified to cause significant community transmission or multiple COVID-19 clusters, in multiple countries with increasing relative prevalence alongside an increasing number of cases over time, or other apparent epidemiological impacts to suggest an emerging risk to global public health
- **WGS:** Whole-genome sequencing
- **WHO:** World Health Organisation