Overview:
• Introduction to molecular mechanisms of viral replication and pathogenicity
• Methods in detection and characterization of viral infections
• Engineering viruses for biotechnology purposes
• Development of viral reagents for pharmaceutical and biomedical products

Lecture Topics:
1. The variety of viruses (taxonomic diversity)
2. Molecular biology of viral replication
3. Viral pathogenesis and disease
4. Working with viruses: Biosafety
5. Vaccines and antiviral pharmaceuticals
6. Virus engineering and gene therapeutics
7. The art of detection: Viromics

Lab Topics:
1. Rate of infection and MOI - Bacteriophage 1 week
2. Virus infection of tissue cultures 1 week
3. Cytopathic effect, virus replication and gene expression – Ranavirus 3 weeks
4. Cell transduction and exogenous gene expression – Baculovirus 2 weeks