Course: 44408 **Molecular virology** 2+1+1 5 ECTS

Lecturer: Professor Dijana Škorić, PhD

Department of Biology

E-mail: dijana.skoric@biol.pmf.unizg.hr ,
drdijana.skoric@gmail.com

Consults – book an appointment by e-mail!

2025/26-intro.

Asistant for a part of the laboratory excercises

Asst. Prof. Lucija Nuskern Karaica, Ph.D.

Syllabus:

Lectures

The replication of viruses from different taxonomic groups–studies of genome and replication mechanisms

Viral transcriptomes

Viral proteome - translation mechanisms and functions of proteins

Viruses and RNA silencing (*VIGS)*

Viruses as cloning vectors ?

Virus diversity – molecular mechanisms, virus evolution

Emerging viruses, virus epidemiology

Retroviruses – Molecular mechanisms of the pathogenesis, HIV – new insights, evolutionary origin

Immune responses to viral infection ?

Vaccines – new insights

Interferon, treatment of viral diseases

Chemotherapy of viral diseases

Molecular phylogeny of viruses

Seminars

Topics?

Practical part of the course:

1. Viral RNA isolation methods (plant viruses as models), concentration measurements, RT-PCR detection.

2. Electrophoretic analysis of viral amplicons in agarose gel, different staining methods.

3. RT-LAMP
Electrophoretic and colorimetric analysis of amplicons.

Time of completion: 3 x 4h, condensed, Saturdays (9-13h?).

Wear a lab coat!

Grouping of students?

Schedual:

Lectures

Practicals

????

Seminars- students’ tasks:

Prepare for the seminars!

Choose a topic for your presentation after the discussion in class, book the time with the teacher for the presentation, prepare ppt up to 15-min-long.

Please, respect the time limit!

A presenter of a topic reads literature, finds additional papers if need, sends the presentation draft to the teacher for consult minimum 2 days before the presentation.

Prepare for a 10-min discussion.

Pdf will be posted on the intranet as teaching material for everybody in the class.

Proposed schedual for seminars?

Lectures – intensely done by the beginning of May,

Seminars starting date? (lecture + 1-2 seminars).

Test on the laboratory part after its completion. When?

Final test (written), when?

Oral exam – elective.

Testing and schedual:

The first test – only laboratory excercise material

April/May date, place? – 15 points, 35 min

(multiple choice questions+short assay type answers), (5 multiple choice – 1 pint/each, 5 essay type questions, 2 points/each)

The second test (final) – 40 points, 60 min

mixed type (multiple choice 1pt/answer+ short assay type answers 2-4 points/answer), material from lectures and seminars, date set later.

Seminar – 30 points

Oral exam – 15 points, only if a student wants an excellent mark.

Final exam – dates in ISVU, register!

Grading system

Requirements:

Completed laboratory excercise, completed seminar, regular class attendance.

Seminar is graded by the teacher taking into account the preparedness of the students for the topic, the scope of the presentation (it has to be in accordance with the title), the quality of the presentation and the preparedness for the discussion.

Grades:

100 – 90 points, excellent (5)

89 – 80, very good (4)

79 – 69, good (3)

68 – 60, satisfactory (2)

If a student repeats the exam (if graded F(1) at the written final test), the repeated exam is oral only.

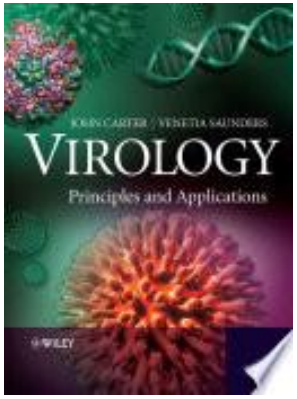
It is important to register in ISVU again.

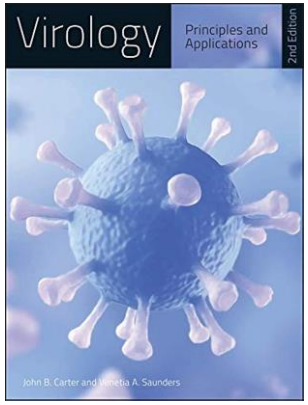
QUESTIONS?

Literature:

Lecture slides (pdf) and your notes, seminar pdfs, original and review scientific papers recommended and usually supplied by the lecturer.

Book: Carter J. B. & Saunders V. A. Virology – Principles and Applications. 2007 (or 2013-2nd edition), Wiley.



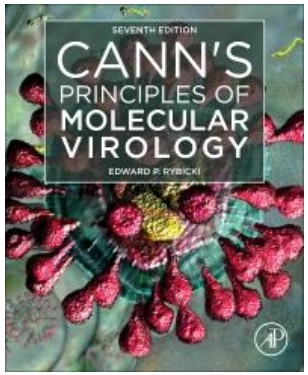


Optional:

Flint et al. Principles of Virology, APS Press 4th edition (2015) or 5th (2020).

Strauss J. H. & Strauss E. G. Viruses and Human Disease. 2nd edition, 2008, Academic Press or later edition.

Ed Rybicki – Cann's Principles of Molecular Virology (7th edition), Elsevier.



Review your notes of Bacteriology and Virology courses, Cell Biology, Biochemistry (of nucleic acids and proteins).