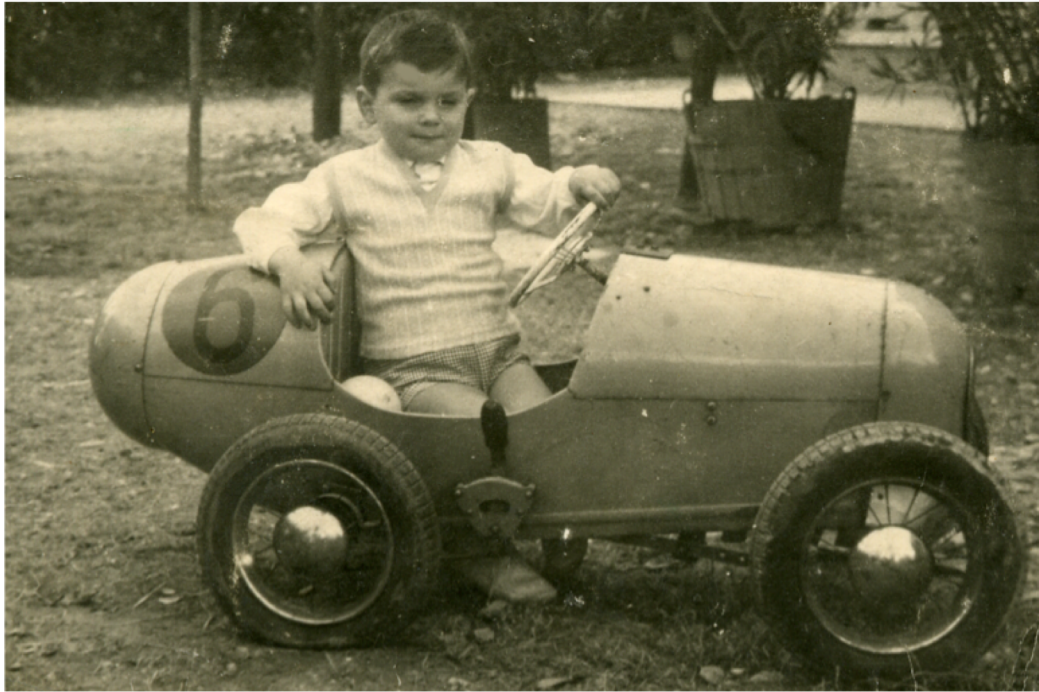




***Welcome to the Virology course***



*Prof. Giorgio Gribaudo*

**LW** *Laboratory of Microbiology and Virology*



phone: 011- 6704648

email: [giorgio.gribaudo@unito.it](mailto:giorgio.gribaudo@unito.it)

*This course aims to provide students with an advanced knowledge of cell and molecular biology of animal viruses, and of their applications to deliver and express either their own or foreign genes.*

Specific learning objectives are:

- *the repertoire of viral strategies to endure in host populations;*
- *how to cultivate and assay viruses in the laboratory;*
- *the principles involved in developing methods of treatment and control of viral infections;*
- *how to engineer viral genomes to deliver and express specific genes.*

- **Lessons notes**

- **Presentations available at the following link:**  
<http://cmb.i-learn.unito.it/>

The following **Virology textbook** is recommended and available from the teacher, or at the DBIOS library:

- **Flint S.J., Enquist L.W., Racaniello V.R., Skalka A.M. – Principles of Virology – 4<sup>th</sup> ed. ASM Press, 2015**

**• Web sites of interest**

- <http://viralzone.expasy.org/>
- <http://www.viprbrc.org/brc/home.do?decorator=vipr>
- <http://www.virology.net/garryfavwebindex.html>
- <http://jvi.asm.org/>

# *Virology A.Y. 19-20 Course Grade Determination*

*Midterm Multidisciplinary Test (Optional)*

*Multidisciplinary Research Essay (Optional)*

*Final Exam*



# Virology A.Y. 19-20 Course Grade Determination

## Midterm Multidisciplinary Test (MMT)

The MMT will be in common with the courses of **Advanced Cell Biology and Biotechnology**, **Cell Physiology**, and **Oncology and Molecular Pathology**. It will be a Moodle-based test of 32 questions (8 for each course): 28 with a variety of formats (multiple choice, true/false, filling in checklists) and 4 open questions. The optional MMT will give rise to additional points to the final grade of final exam of all courses, provided this will be passed in the first session (**January-February 2020**). Correspondence between Midterm Multidisciplinary Test vote and additional points for final exams is as follows: 22-23/32, 0.5 points; 24-25/32, 1 points; 26-27/32, 1.5 points; 28-32/32, 2 points. The MMT will be held in **November 2020**.

## Multidisciplinary Research Essay (MRE)

This at-home assignment will be in common with the courses of **Advanced Cell Biology and Biotechnology**, **Cell Physiology**, and **Oncology and Molecular Pathology**. It will refer to methodologies and technical approaches relevant to all courses. The essay (up to 2000 characters + figures, tables and references, deadline **January, 2020**) will be prepared by groups of normally three students and orally presented for discussion with Teachers at the end of courses (**January, 2020**). The optional MRE will give rise to additional points to the final grade of final exam of all courses, provided this will be passed in the first exam session (**January-February 2020**). Correspondence between vote to the Multidisciplinary Research Essay and additional points for final exams is as follows: 22-23, 0.5 points; 24-25, 1 points; 26-27, 1.5 points; 28-30, 2 points.

# Virology A.Y. 19-20 Course Grade Determination

## Virology Final Exam

- The final exam will be a Moodle-based test of **11 questions** with different formats (multiple choice, true/false, filling in checklists) and **6 open questions** for a maximum grade of 32/30.
- Grading 31 and 32 will give rise to “30 cum laude”.
- Any additional points obtained by MMT and MRE will be added to the final exam grade of the first exam session (**January 27, 2020 - February 26, 2020; 2.00 pm**).



# Virology A.Y. 19-20 Course Grade Determination

## *To sum up...*

- *Final exam: **January 27 and February 26, 2020**  
(Morpho Lab. - 2.00 pm)*
- *Presentations available on the Moodle platform*
- *Textbook available at the DBIOS library*
- *Office hours: **on email appointment***



***Syllabus***

## GENERAL VIROLOGY

- **Cell and molecular biology of virus-host cell interactions.**
- **Examples of DNA and RNA viruses infections.**
- **Prevention and control of viral infections and diseases.**
- **Antiviral drugs: mechanisms of action of approved molecules.**
- **Vaccines: a proven defense against viral infections.**

## APPLIED VIROLOGY

- **Basic techniques for virus cultivation and assay.**
- **Principles of diagnostic virology.**
- **Examples of the design, discovery, and validation of candidate antiviral drugs and vaccines.**
- **Engineering viral genomes to deliver and express genes of interest. Rational design, development and applications of the most common viral vectors. Examples of viral vectors: AAV, Alphavirus, Adenovirus, Baculovirus, Poxvirus, Rhabdovirus, Retrovirus, Lentivirus.**
- **Examples of applications of viral vectors for protein expression, gene delivery, gene therapy, and vaccine development.**