



FEDERAL UNIVERSITY OF RIO DE JANEIRO
PAULO DE GOÉS MICROBIOLOGY INSTITUTE
GRAD SCHOOL COORDINATION/ INTERNATIONAL RELATIONS

INTERNATIONAL RELATIONS COURSES

– TERM – 2020 - 2

COURSE NAME	Microbiology of Sexually Transmitted Infections	
COURSE CODE	RIW	
COORDINATOR	Asst. Prof. Tomislav Meštrović, MD, PhD, MPH Tatiana Pinto, Juliana Cortines	
COURSE TYPE	BASIC ()	
Obs: Basic courses involve knowledge considered essential for Microbiology graduate students. Advanced courses involve additional/advanced knowledge that will complemente previous information.	ADVANCED (X)	Obs:
DATES		
COURSE HOURS	30 h	
PREVIOUS KNOWLEDGE REQUIRED	NO ()	
	YES (X) - Background knowledge in basic microbiology	
COURSE TYPE	Theoretical (X)	Seminars (X)
	Practical ()	
NUMBER OF STUDENTS	Minimum (-)	
	Maximum (20)	
Course description:		
<p>Sexually transmitted infections (STIs) remain one of the salient focus areas in the context of global public health, posing an enormous burden of morbidity and mortality due to their adverse effects on reproductive and child health, as well as their role in facilitating the transmission of HIV infection. Therefore, targeted expert approach from all branches of microbiology is becoming indispensable for adequately addressing this matter. The concepts taught in this course will provide the students with advanced microbiological knowledge of pathogens causing these infections, explore rising antimicrobial resistance trends, as well as introduce key breakthroughs in diagnostic procedures and tests. The course will also cover the microbiome of the human reproductive system and current state of knowledge</p>		

regarding therapeutic and available microbiology-relevant preventative options.

Course outline (30 hours in total) - 15 hours of video lecture units/VLUs + 15 hours of seminars/assignments):

- Overview and global epidemiology of sexually transmitted infections - 1 VLU
- Mucosal immunity and resident microbiome in the human reproductive tract - 1 VLU
- Bacterial sexually transmitted infections - 4 VLUs
- Viral sexually transmitted infections - 3 VLUs
- Parasitic and tropical sexually transmitted infections - 2 VLUs
- Microbiology of the vaginitis syndrome - 1 VLU
- Treatment and prevention: from topical microbicides to vaccines - 1 VLU
- Emerging antimicrobial resistance in sexually transmitted pathogens - 1 VLU
- Probiotics against sexually transmitted infections: current state of research - 1 VLU

Notes: The bacterial, viral and parasitic subunits will cover individual pathogens in depth regarding microbiology and laboratory diagnostics, and will also briefly mention clinical presentation and treatment.

This syllabus is intended to give the student guidance in what may be covered during the semester and will be followed as closely as possible. The course coordinator reserves the right to modify, supplement and make changes as the course needs arise, which will always be reported to the participating students on time.

Basic knowledge required:

Previous basic knowledge on microorganism types, structure and genetics of bacteria, viruses, fungi, protozoa and other parasites, with the knowledge of other basic principles of microbiology. Previous basic knowledge on cell biology, bioprocesses, laboratory techniques and antimicrobial agents.

Learning outcomes:

Students will have a broad knowledge of relevant microorganisms that cause sexually transmitted infections (bacteria, viruses, fungi and parasites), as well as their taxonomy, properties, structure, growth, and molecular mechanisms for gene regulation, transmission of genetic material and antimicrobial resistance development.

Students will understand the wide array of diagnostic methods used for identifying aforementioned microorganisms in the laboratory, and obtain insights into the novel, state-of-the-art methods used for establishing a microbiological diagnosis.

Students will understand how the aforementioned microorganisms cause sexually transmitted infections and how available antimicrobial chemotherapy actually works in halting the infection cycle at the cellular and molecular level.

Students will have a broad knowledge of STI epidemiology and reproductive tract microbiome, and understand available preventative options such as vaccination (with pertinent information relevant for microbiologists).

Students will work collaboratively and in teams to critically appraise the content of this course, as well as

to apply the obtained knowledge in analyzing recent research papers and real-life scenario examples.

Bibliography:

This course will be taught entirely by distance learning, using the virtual learning platform of the University of Rio de Janeiro. All course materials (i.e., required and suggested reading) will be provided to students before the start of the course, protected by a secure username and password, and the access details will be available to registered students.

SYLLABUS

Date Time	Class type (T, P, S or St)*	Topic
06/10/20 10-12 h	S + St	Overview and global epidemiology of sexually transmitted infections
07/10/20 10-12 h	T + St	Mucosal immunity and resident microbiome in the human reproductive tract
08/10/20 10-12 h	T + St	Bacterial sexually transmitted infections
09/10/20 10-12 h	T + St	Bacterial sexually transmitted infections
13/10/20 10-12 h	T + St	Bacterial sexually transmitted infections
14/10/20 10-12 h	T + St	Bacterial sexually transmitted infections
15/10/20 10-12 h	T + St	Viral sexually transmitted infections
16/10/20 10-12 h	T + St	Viral sexually transmitted infections
19/10/20	T + St	Viral sexually transmitted infections

10-12 h		
20/10/20 10-12 h	T + St	Parasitic and tropical sexually transmitted infections
21/10/20 10-12 h	T + St	Parasitic and tropical sexually transmitted infections
22/10/20 10-12 h	T + St	Microbiology of the vaginitis syndrome
23/10/20 10-12 h	T + St	Treatment and prevention: from topical microbicides to vaccines
26/10/20 10-12 h	T + St	Emerging antimicrobial resistance in sexually transmitted pathogens
27/10/20 10-12 h	T/S	Probiotics against sexually transmitted infections: current state of research

*(T) Theoretical, (P) Practical or (S) Seminar, (St) Study

All theory classes will be presented as recorded video lectures by Dr. Tomislav Mestrovic. And the students are expected to complete the 2 hour commitment with independent studies, marked as St in the Syllabus.