***Course name:***
***Plant virology***

| | |
|---|---|
| ECTS | 3 |
| Course status | *facultative* |
| Course final assessment /evaluation of outcomes | The grade based on Student's work |
| Prerequisite | |

***Main field of study****:*
Agriculture and Horticulture, Biology and Biotechnology (Erasmus+)

| | |
|---|---|
| Educational profile | General academic |
| Code of studies and education level | master of science (SM) |
| Semester of studies | Winter or summer |
| Language of instruction | English |

**Course offered by**:

| | |
|---|---|
| Name of faculty offering the course | Faculty of Biotechnology and Horticulture |
| Name of department offering the course | Department of Botany, Physiology and Plant Protection |
| Course coordinator | dr hab. Barbara Nowak |

**Learning outcomes**:

| Symbol of outcome | Description of the learning outcome | Reference to main field of study outcomes | Area symbol* |
|---|---|---|---|
| KNOWLEDGE – student knows and understands | | | |
| PVI_W1 | basic terms used in virology | EPB2_W02 | R, P |
| PVI_W2 | diversity of viruses, system of classification and nomenclature | EPB2_W02 | R, P |
| PVI_W3 | methods of transmission, pathogenesis, symptoms, and prevention or therapy methods | EPB2_W01, EPB2_W04 | R, P |
| PVI_W4 | theoretical foundation of detection methods | EPB2_W04 | R, P |
| SKILLS – student is able to | | | |
| PVI_U1 | indentify the most common viruses and diseases caused by them | EPB2_U05 | R, P |
| PVI_U2 | choose appropriate method of detection, prevention or therapy | EPB2_U01 | R, P |
| PVI_U3 | explain the causes of virus outbreaks | EPB2_U05 | R, P |
| PVI_U4 | prepare a study of a selected issue using available databases and current specialist terminology in English | EPB2_U03 | R, P |
| SOCIAL COMPETENCIES – student is ready to: | | | |
| PVI_ K1 | assess of the risk associated with the presence of viral pathogens and respects the principles of phytosanitary safety in relation to himself and the surrounding environment | EPB2_K03 | R |
| PVI_ K2 | follow the rules of teamwork with the awareness of responsibility for jointly implemented tasks | EPB2_K02 | R |

**Teaching contents**

| | |
|---|---|
| Lectures | 10 hours |
| Topics and therapeutic techniques | The structure of viruses and biological, structural and serological criterion of systematic.<br>Survey of chosen families of viruses.<br>Models of virus replication, strategies of replication and translation<br>Means of virus transmission and different types of vectors. Viruses transmitted in persistent and non-persistent way.<br>Pathogenesis of viral diseases: infection, virus movement, symptoms development.<br>Methods of prevention: resistance reaction of the plant, breeding for resistance, diagnostics<br>Origin and virus evolution. |
| Accomplished learning outcomes | *PVI_W1-W5, PVI_K1* |
| Means of verification, rules and criteria of assessment | *Elaboration and presentation on the current problem of virology; the share of the lecture grade in the final grade is 50.%* |
| Classes: | 20 hours |
| Topics | Biological assay on indicator plant.<br>Stability of viruses in plant sap.<br>Serological methods of virus detection.<br>Electron microscopy in virus diagnosis and identification.<br>Molecular methods: RT-PCR for plant virus detection. |
| Accomplished learning outcomes | *PVI_U1-U4, PVI_K2* |
| Means of verification, rules and criteria of assessment | *Completing all partial reports on exercises performed; the share of the lecture grade in the final grade is 50%* |

**References**:

| | |
|---|---|
| Basic | *Khan J.W., Dijkstra J. 2006. Handbook of plant virology.* |
| Supplementary | *3 max* |

**Structure of learning outcomes**

| | |
|---|---|
| Area of academic study: R – Agricultural, forestry and veterinary sciences | 2 ECTS ** |
| Area of academic study: P– Biological sciences | 1 ECTS** |

**Structure of student activity**

| | | | | | |
|---|---|---|---|---|---|
| Contact hours | | 34 | hrs. | 1,4 | ECTS** |
| Including: | lectures | 10 | hrs. | | |
| | classes and seminars | 20 | hrs. | | |
| | consultations | 2 | hrs. | | |
| | participation in research | … | hrs. | | |
| | obligatory traineeships | … | hrs. | | |
| | participation in examination | 2 | hrs. | | |
| e-learning | | … | hrs. | …. | ECTS** |
| student own work | | 41 | hrs. | 1,6 | ECTS** |

*Areas of academic study in the fields of: H- humanities; S - social studies; P – biological sciences; T – technological sciences; M- medical, sport and health sciences; R – Agricultural, forestry and veterinary sciences; A – the arts
** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes