**UNIVERSITY OF APPLIED SCIENCES OF RIJEKA**

Trpimirova 2, 51000 Rijeka

COURSE CATALOGUE – **AGRICULTURAL DEPARTMENT**

Study Programme: Mediterranean Agriculture

BACHELOR DEGREE

**Winter Semester**

|  |  |  |  |
| --- | --- | --- | --- |
| No | *Course Title* | *Course Holder* | *ECTS credits* |
| 1 | Chemistry | Siniša Petrović | 4 |
| 2 | Botany and basics of genetics | Marin Tomičić | 5 |
| 3 | Agricultural ecology | Melita Zec Vojinović | 4 |
| 4 | English language I | Mladen Marinac | 3 |
| 5 | Plant protection II | Ivana Dminić Rojnić | 4 |
| 6 | Viticulture I | Marijan Bubola | 4 |
| 7 | English language III | Mladen Marinac | 3 |
| 8 | Seed production | Marin Tomičić | 4 |
| 9 | Mediterranean livestock | Damir Šekulja | 4 |
| 10 | Olive growing | Marin Krapac | 6 |
| 11 | Olive processing | Urška Kosić | 6 |
| 12 | Winemaking II | Kristijan Damijanić | 5 |
| 13 | Greenery | Igor Palčić | 4 |
| 14 | Special and sprakling wines | Sanja Radeka  Kristijan Damijanić | 4 |
| 15 | Irrigation | David Gluhić | 4 |

**Summer semester**

|  |  |  |  |
| --- | --- | --- | --- |
| No | *Course Title* | *Course Holder* | *ECTS credits* |
| 1 | Biochemistry | Siniša Petrović | 5 |
| 2 | Soil science | Melita Zec Vojinović | 4 |
| 3 | Plant protection I | Ivana Dminić Rojnić | 4 |
| 4 | English language II | Mladen Marinac | 3 |
| 5 | Agricultural microbiology | Urška Kosić | 4 |
| 6 | Growing of vegetables | Slavica Dudaš | 5 |
| 7 | Viticulture II | Marijan Bubola  Elvino Šetić | 5 |
| 8 | Winemaking I | Damijanić Kristijan | 5 |
| 9 | English language III | Mladen Marinac | 3 |
| 10 | Basics of beekeeping | Damir Šekulja | 4 |
| 11 | Preservation of agricultural and bee products | Urška Kosić | 5 |
| 12 | Aromatic and medical plants | Slavica Dudaš | 3 |
| 13 | Landscaping | Zrinka Brajan | 4 |

**COURSE TITLE**: **CHEMISTRY**

**Course Holder**: Dr. rer. nat. Siniša Petrović, senior lecturer

**Study programme**: Professional Undergraduate Study of Mediterranean Agriculture

**Course status**: **Compulsory**

**Year**: 1  **Semester**: 1  **ECTS credits**: 4

**Class format (L + E + S + P)**: Lectures + Exercises

**Course objectives**

To introduce students to the structure, properties, and chemical changes of substances, as well as to the basics of chemical calculations. Special emphasis is placed on compounds and reactions relevant to the processing of Mediterranean crops. Exercises are designed to develop students’ ability to solve problems, conduct experiments, record results, and draw conclusions from conducted measurements.

**Prerequisites**

None

**Learning outcomes at the programme level supported by this course**

* Assess the influence of biological, ecological, and physico-chemical elements in agricultural production.
* Apply wine production technology.
* Apply virgin olive oil production technology.
* Choose appropriate methods of processing and preserving plant and animal products.
* Evaluate the quality of agricultural products based on chemical and sensory characteristics.

**Expected learning outcomes at the course level**

* **Outcome 1**: Acquire fundamental chemical concepts and solve calculation-based problems.
* **Outcome 2**: Distinguish types of solutions and perform laboratory measurements using methods for solution composition analysis.
* **Outcome 3**: Explain the characteristics of chemical reactions and their importance in the processing of agricultural products; categorise chemical elements and their compounds and explain their use in agricultural production.
* **Outcome 4**: Distinguish organic compounds based on their structure and properties; evaluate the characteristics and use of selected organic compounds.

**Teaching methods**

☒ Lectures

☒ Auditory exercises

☐ Seminars and workshops

☒ Distance learning

☐ Fieldwork

☐ Independent assignments

☒ Multimedia and internet

☒ Laboratory

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Remarks**

Students must complete laboratory exercises during classes as a prerequisite for taking the exam.

**Assessment, evaluation and monitoring of student performance**

Student assessment is based on evaluation of the achievement of learning outcomes. Assessment is carried out continuously during the course and/or at the final exam, in accordance with the Regulation on Grading.

**Continuous assessment**

**:**

| **Learning outcome** | **Homework (%)** | **Lab exercises (%)** | **1st Test (%)** | **2nd Test (%)** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- | --- |
| Outcome 1 | 2 | - | 18 | - | 10 | 20 |
| Outcome 2 | 2 | 4 | 34 | - | 20 | 40 |
| Outcome 3 | - | - | 14 | - | 7 | 14 |
| Outcome 4 | - | - | 26 | - | 13 | 26 |

**ECTS contribution**:

0.16 0.16 2.08 1.6

**Total**:

4% 4% 52% 40% **Threshold: 50%** **Max: 100%**

*A student passes the course if they achieve at least the threshold percentage for each learning outcome.*

**Final exam**

**:**

| **Learning outcome** | **Written exam (%)** | **Oral exam (%)** | **Max (%)** |
| --- | --- | --- | --- |
| Outcome 1 | 18 | 2 | 20 |
| Outcome 2 | 34 | 6 | 40 |
| Outcome 3 | 14 | - | 14 |
| Outcome 4 | 26 | - | 26 |

**ECTS contribution**:

3.6 0.4

**Total**:

90 10 **100**

*A student passes the course if they achieve at least the threshold percentage for each learning outcome.*

**Grading**

A student passes the exam if they achieve at least 50% of the possible points for each learning outcome.

If all learning outcomes have been passed, the total percentage of achieved points is calculated and the final grade is assigned according to the following scale:

| **Score range (%)** | **Numerical grade** | **ECTS grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**Compulsory literature**

1. Filipović, I., Lipanović, S. *General and Inorganic Chemistry I and II*. Školska knjiga, Zagreb, 1995.
2. Biffl, M. *Basic Chemistry for Forestry Students*. Školska knjiga, Zagreb, 1991.
3. Sikirica, M. *Stoichiometry*. Školska knjiga, Zagreb, 2008.
4. Sikirica, M., Korpar-Čolig, B. *General Chemistry Lab Manual*. Školska knjiga, Zagreb, 2005.
5. Amić, D. *Organic Chemistry for Agricultural Students*. Školska knjiga, Zagreb, 2008.

**Recommended literature**

* Petreski, A., Sever, M. *Chemistry: Collection of Solved Examples and Problems in General Chemistry*. Profil, Zagreb.
* <https://www.purposegames.com/game/kemija-kemijski-elementi-i-spojevi-game>
* <https://www.purposegames.com/game/kemijski-pribor-game>
* <https://www.purposegames.com/game/classifying-carbohydratesproteinslipidsand-nucleic-acids-game>

**COURSE TITLE**: **BOTANY AND FUNDAMENTALS OF GENETICS**

**Course Holders**:

Dr. sc. biotech. Ivana Dminić Rojnić, senior lecturer

Marin Tomičić, mag.ing.hort., assistant

**Study programme**: Professional Undergraduate Study of Mediterranean Agriculture

**Course status**: **Compulsory**

**Year**: 1  **Semester**: I  **ECTS credits**: 5

**Class format (L + E + S + P)**: (3 + 1 + 0 + 0)

**Course objectives**

To introduce students to the structure and functions of plant organisms, reproduction, characteristics of specific plant groups, and the basic laws of inheritance of traits.

**Course prerequisites**

None

**Learning outcomes at the programme level supported by this course**

* 2.1. Evaluate the quality of planting material.
* 2.2. Produce planting material using appropriate propagation methods.
* 2.3. Select suitable production technologies for viticulture and fruit growing.
* 2.4. Select suitable production technologies for growing vegetables in open fields and protected areas.
* 2.5. Select suitable production technologies for medicinal herbs.

**Expected learning outcomes at the course level**

1. Analyse the importance of the cell as the basic structural and functional unit of life.
2. Distinguish plant tissues and organs and their roles in plant life.
3. Compare the differences between vegetative and generative plant reproduction.
4. Present the structure and main features of specific plant groups and identify wild and cultivated species.
5. Prepare native slides of plant material and use microscopy techniques.
6. Explain basic concepts related to inheritance processes and the variability of living organisms and plants.

**Teaching methods**

☑ Lectures

☑ Exercises

☐ Seminars and workshops

☐ Distance learning

☐ Fieldwork

☑ Independent assignments

☐ Multimedia and internet

☑ Laboratory

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_

**Remarks**

**Student obligations**:

Students must fulfil the obligations prescribed by the Study Regulations and the Grading Regulations. During the course, students are required to prepare and deliver a presentation according to the agreed schedule and complete the exercises.

**Assessment, evaluation and monitoring of student performance**

Assessment is based on evaluating the achievement of course learning outcomes. It is conducted continuously during the course and/or during the final exam, in accordance with the Grading Regulations.

**Continuous assessment**

**:**

| **Learning outcome** | **Midterm (%)** | **Exercises (%)** | **Activity (%)** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- |
| Outcome 1 | 10 | - | 5 | - | 10 |
| Outcome 2 | 20 | - | 10 | - | 20 |
| Outcome 3 | 15 | - | 7.5 | - | 15 |
| Outcome 4 | 10 | 10 | 10 | - | 20 |
| Outcome 5 | - | 15 | 7.5 | - | 15 |
| Outcome 6 | 20 | - | 10 | - | 20 |

**ECTS contribution**:

3.5 (midterms) 1 (exercises) 0.5 (activity)

**Total**:

75% (midterms) 15% (exercises) 10% (activity) **Threshold: 50%** **Max: 100%**

*A student passes the course if they achieve a percentage of points for each learning outcome that is equal to or higher than the defined threshold.*

**Final exam**

**:**

| **Learning outcome** | **Written exam (%)** | **Oral exam (%)** | **Max (%)** |
| --- | --- | --- | --- |
| Outcome 1 | 10 | - | 10 |
| Outcome 2 | 20 | - | 20 |
| Outcome 3 | 15 | - | 15 |
| Outcome 4 | 15 | 5 | 20 |
| Outcome 5 | - | 15 | 15 |
| Outcome 6 | 20 | - | 20 |

**ECTS contribution**:

4 (written exam) 1 (oral exam)

**Total**:

80% (written) 20% (oral) **100%**

*A student passes the course if they achieve a percentage of points for each learning outcome that is equal to or higher than the defined threshold.*

**Grading**

A student passes the exam if they achieve at least 50% of the points for each learning outcome.

If all learning outcomes are passed, the total percentage of points is calculated and the final grade is determined according to the following table:

| **Score range (%)** | **Numerical grade** | **ECTS grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**Compulsory literature**

* Course lecture materials
* Nikolić, T., 2017. *Plant Morphology: Development, Structure and Function of Plant Tissues, Organs and Organ Systems*. Alfa, Zagreb.
* Dubravec, K., 1996. *Botany*. University of Zagreb, Faculty of Agriculture.

**Recommended literature**

* Dubravec, K., Šegulja, N., 2005. *Weeds of Cultivated Areas in Istria*. Polytechnic of Rijeka, Poreč.
* Hulina, N., 1998. *Weeds*. Školska knjiga, Zagreb.
* Pevalek-Kozlina, B., 2003. *Plant Physiology*. Profil, Zagreb.
* Nikolić, T., 2013. *Systematic Botany: Diversity and Evolution of the Plant World*.

**COURSE TITLE**: **AGRICULTURAL ECOLOGY**

**Course Holder**: Dr. sc. biotech. Melita Zec Vojinović, senior lecturer

**Study programme**: Professional Undergraduate Study of Mediterranean Agriculture

**Course status**: **Compulsory**

**Year**: 1  **Semester**: I  **ECTS credits**: 5

**Class format (L + E + S + P)**: (3 + 0 + 0 + 0)

**Course objectives**

To introduce students to basic ecological concepts, ecosystem functioning, the ecosphere, and human impact on its components. To familiarize students with contemporary ecological challenges and the basic principles of sustainable development, as well as sustainable and organic agriculture.

**Course prerequisites**

None

**Learning outcomes at the programme level supported by this course**

* 1.1. Evaluate the influence of biological, ecological, and physico-chemical elements in agricultural production.
* 1.4. Develop a cultivation plan for Mediterranean crops.
* 2.2. Produce planting material using appropriate propagation methods.
* 3.1. Manage soil fertility.
* 3.2. Design plant nutrition models.
* 3.4. Develop plant protection measures against pests.

**Expected learning outcomes at the course level**

* Comment on basic ecological concepts, the functioning and condition of ecosystems.
* Assess the consequences of anthropogenic activities on the ecosphere and its components.
* Analyse agricultural production systems based on ecological concepts and principles.
* Select appropriate crops for ecological cultivation in the Mediterranean biome.
* Select environmentally acceptable protection measures for agricultural systems of Mediterranean crops.

**Teaching methods**

☑ Lectures

☐ Exercises

☐ Seminars and workshops

☐ Distance learning

☐ Fieldwork

☑ Independent assignments

☐ Multimedia and internet

☐ Laboratory

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_

**Remarks**

**Student obligations**:

Attendance is mandatory. Students must maintain a notebook with completed activities (assignments, homework), which are reviewed and graded.

**Assessment, evaluation and monitoring of student performance**

Assessment is based on evaluating the achievement of course learning outcomes. It is conducted continuously during the course and/or during the final exam, in accordance with the Grading Regulations.

**Continuous assessment**

**:**

| **Learning outcome** | **Assignment** | **Homework** | **Presentation** | **Midterm** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- | --- |
| Outcome 1 | 4 | – | 10 | 18 | 16 | 32 |
| Outcome 2 | 2 | – | 10 | 18 | 15 | 30 |
| Outcome 3 | 16 | – | – | – | 8 | 16 |
| Outcome 4 | 2 | – | 10 | – | 6 | 12 |
| Outcome 5 | – | 10 | – | – | 5 | 10 |

**ECTS contribution**:

Assignment – 1 Homework – 0.5 Presentation – 1.5 Midterm – 2

**Total**:

24% (Assignment) + 10% (Homework) + 30% (Presentation) + 36% (Midterm)

**Threshold: 50%** **Max: 100%**

*A student passes the course if they achieve a percentage of points for each learning outcome that is equal to or higher than the defined threshold.*

**Final exam**

**:**

| **Learning outcome** | **Written exam** | **Oral exam** | **Max (%)** |
| --- | --- | --- | --- |
| Outcome 1 | 26 | 6 | 32 |
| Outcome 2 | 24 | 6 | 30 |
| Outcome 3 | 12 | 4 | 16 |
| Outcome 4 | 10 | 2 | 12 |
| Outcome 5 | 8 | 2 | 10 |

**ECTS contribution**:

Written exam – 4 Oral exam – 1

**Total**: 80% + 20% = **100%**

*A student passes the course if they achieve a percentage of points for each learning outcome that is equal to or higher than the defined threshold.*

**Grading**

A student passes the exam if they achieve at least 50% of the points for each learning outcome.

If all learning outcomes are passed, the total percentage of achieved points is calculated and the final grade is determined according to the following scale:

| **Score range (%)** | **Numerical grade** | **ECTS grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**Compulsory literature**

* Fanuko, N. (2006). *ECOLOGY. Textbook for professional studies in winemaking and Mediterranean agriculture*. Polytechnic of Rijeka. Poreč – Rijeka.

**Recommended literature**

* Glavač, V. (2001). *Introduction to Global Ecology*. Croatian University Press, Zagreb.
* Kisić, I. (2014). *Introduction to Organic Agriculture*. University textbook, University of Zagreb Faculty of Agriculture, Zagreb.
* Znaor, D. (1996). *Organic Agriculture*. Globus Publishing, Zagreb.
* Igrc Barčić, J., Maceljski, M. (2001). *Environmentally Friendly Plant Protection from Pests*. Zrinski, Čakovec.

**COURSE TITLE**: **ENGLISH LANGUAGE I**

**Course Holder**: Mladen Marinac, mag.educ.philol.ang. et hist., lecturer

**Study programme**:

* Professional Undergraduate Study of Mediterranean Agriculture
* Professional Undergraduate Study of Winemaking

**Course status**: **Compulsory**

**Year**: I  **Semester**: I  **ECTS credits**: 3

**Class format (L + E + S + P)**: 1 + 1 + 0 + 0

**Course objectives**

The aim of the course is to develop students’ oral and written expression in general English and to acquire vocabulary and collocations related to agriculture, as well as grammar structures used in that professional context.

The course also focuses on improving writing and speaking skills, particularly the ability to write a CV and to present oneself in a professional environment using presentation tools.

**Course prerequisites**

None

**Learning outcomes at the programme level supported by this course**

**Mediterranean Agriculture programme:**

* 5.4. Design activities for the presentation, placement, and distribution of agricultural products.

**Winemaking programme:**

* 6.3. Design activities for the presentation, placement, and distribution of products.

**Expected learning outcomes at the course level**

* Use professional vocabulary related to winemaking and Mediterranean agriculture.
* Use grammatical structures in a professional context.
* Write a curriculum vitae in English.
* Present oneself in English in a business context using computer-based presentations.

**Teaching methods**

☑ Lectures

☑ Auditory exercises

☑ Seminars and workshops

☑ Distance learning

☐ Fieldwork

☑ Independent assignments

☑ Multimedia and internet

☐ Laboratory

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_

**Remarks**

**Student obligations**:

Students are required to deliver a presentation according to the agreed schedule during the course and fulfil the obligations prescribed by the Study Regulations and the Grading Regulations.

**Assessment, evaluation and monitoring of student performance**

Assessment is based on the evaluation of the achievement of course learning outcomes. It is conducted continuously during the course and/or at the final exam, in accordance with the provisions of the Grading Regulations.

**Continuous assessment**

**:**

| **Learning Outcome** | **CV** | **Presentation** | **1st Midterm** | **2nd Midterm** | **Assignments** | **Reading journal** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome 1 | – | – | 15% | 15% | 10% | 10% | 25% | 50% |
| Outcome 2 | – | – | 10% | 10% | 10% | – | 15% | 30% |
| Outcome 3 | 10% | – | – | – | – | – | 5% | 10% |
| Outcome 4 | – | 10% | – | – | – | – | 5% | 10% |

**ECTS contribution**:

CV – 0.3 Presentation – 0.3 1st Midterm – 0.75 2nd Midterm – 0.75 Assignments – 0.6 Reading journal – 0.3

**Total**:

CV – 10% Presentation – 10% Midterms – 30% + 30% Assignments – 10% Reading journal – 10% **100%**

*A student passes the course if they achieve at least the threshold percentage for each learning outcome.*

**Final exam:**

| **Learning Outcome** | **Written exam** | **Oral exam** | **Max (%)** |
| --- | --- | --- | --- |
| Outcome 1 | 40% | 10% | 50% |
| Outcome 2 | 30% | – | 30% |
| Outcome 3 | 10% | – | 10% |
| Outcome 4 | – | 10% | 10% |

**ECTS contribution**:

Written exam – 2.4 Oral exam – 0.6

**Total**: 80% + 20% = **100%**

*A student passes the course if they achieve a percentage of points for each learning outcome that is equal to or higher than the defined threshold.*

**Grading**

A student passes the exam if they achieve at least 50% of the points for each learning outcome.

If all learning outcomes are passed, the total percentage of achieved points is calculated and the final grade is determined according to the following table:

| **Score range (%)** | **Numerical grade** | **ECTS grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**Compulsory literature**

* Polić, T. (2009). *English for Agronomists and Enologists*. Rijeka: Polytechnic of Rijeka.
* Selected original texts from the field, chosen by the instructor.

**Recommended literature**

* Drinovac Topalović, M. (2019). *Selected Grammar Topics in English for Agricultural Studies of Karst Areas*. (Handbook with texts and exercises). Knin: Polytechnic of Knin.
* EU-dict Croatian-English: <https://eudict.com/?lang=croeng&word=englesko-hrvatski>
* Croatian-English Online Dictionary: <http://www.rjecnik.net/>
* Longman Dictionary of Contemporary English Online: <https://www.ldoceonline.com/>
* O’Sullivan, N., Libbin, J. D. (2011). *Agriculture*. Express Publishing.
* Marinac, M., Bratulić, A. (2020). *English for Agronomic Studies*. (Handbook). Rijeka: Polytechnic of Rijeka.
* Matheson, R. (2014). *English for Agribusiness and Agriculture in Higher Education*. Garnet Publishing Ltd.
* Mikulić, G. (1989). *English in Agriculture*. Školska knjiga, Zagreb.
* *Oxford Collocations Dictionary for Students of English* (2002). Oxford: Oxford University Press.
* Ritz, J. (1996). *Croatian-English and English-Croatian Agronomic Dictionary with Latin-Croatian Index*. Zagreb: Školska knjiga.

**COURSE TITLE**: **PLANT PROTECTION 2**

**Course Holder**: Dr. sc. biotech. Ivana Dminić Rojnić, senior lecturer

**Study programme**: Professional Undergraduate Study of Mediterranean Agriculture

**Course status**: **Compulsory**

**Year**: 2  **Semester**: 3  **ECTS credits**: 4

**Class format (L + E + S + P)**: 2 + 2 + 0 + 0

**Course objectives**

The aim of the course is to introduce students to the economically most significant pests of Mediterranean crops, their biology and ecology, characteristic types of damage, and methods and measures for their monitoring and control, all in accordance with ecological and sustainable development principles.

**Course prerequisites**

Completed course **Plant Protection 1**

**Learning outcomes at the programme level supported by this course**

* Evaluate the quality of planting material
* Produce planting material using appropriate propagation methods
* Select appropriate production technology for viticulture and fruit growing
* Select appropriate production technology for vegetable cultivation in open fields and protected areas
* Select appropriate production technology for medicinal plants
* Develop plant protection measures against pests
* Organise agricultural operations in accordance with legal regulations

**Expected learning outcomes at the course level**

* Identify pests of Mediterranean crops
* Describe the biology and ecology of Mediterranean crop pests
* Distinguish between monitoring methods and define economic thresholds
* Explain pest control measures for Mediterranean crops

**Teaching methods**

☑ Lectures

☑ Auditory exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent assignments

☐ Multimedia and internet

☑ Laboratory

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_

**Remarks**

**Student obligations**:

Students are required to attend exercises during classes, identify and orally present an entomological collection. They must pass exercise evaluations and midterm tests with a minimum of 50% of the total points.

**Assessment, evaluation and monitoring of student performance**

Assessment is based on the evaluation of learning outcomes achieved in the course. It is conducted continuously during classes and/or during the final exam, in accordance with the provisions of the Grading Regulations.

**Continuous assessment**

**:**

| **Learning Outcome** | **Exercises** | **Midterm** | **Identification of entomological collection** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- |
| Outcome 1 | 10 | – | 10 | 10 | 20 |
| Outcome 2 | – | 30 | – | 15 | 30 |
| Outcome 3 | 10 | 10 | – | 10 | 20 |
| Outcome 4 | 10 | 20 | – | 15 | 30 |

**ECTS contribution**:

Exercises – 1.5 Midterm – 2 Collection – 0.5 **Total**: 4 ECTS

**Total**: 30 (Exercises) + 60 (Midterm) + 10 (Collection) = 100%

**Threshold**: 50%

*A student passes the course if they achieve the minimum threshold of points for each learning outcome.*

**Final exam**

**:**

| **Learning Outcome** | **Written exam** | **Oral exam** | **Max (%)** |
| --- | --- | --- | --- |
| Outcome 1 | 10 | 10 | 20 |
| Outcome 2 | 30 | – | 30 |
| Outcome 3 | 20 | – | 25 |
| Outcome 4 | 20 | 10 | 30 |

**ECTS contribution**:

Written exam – 3 Oral exam – 1 **Total**: 4 ECTS

**Total**: 80% (written) + 20% (oral) = 100%

*A student passes the course if they achieve the minimum threshold of points for each learning outcome.*

**Grading**

A student passes the exam if they achieve at least 50% of the allocated points for each learning outcome.

If the student passes all course learning outcomes, the total score (percentage) of all passed outcomes is calculated, and the final grade is determined based on the following table:

| **Score range (%)** | **Numerical grade** | **ECTS grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**Compulsory literature**

* Maceljski, M. et al. (2003): *Agricultural Entomology*, Zrinski, Čakovec
* Maceljski, M. et al. (2006): *Pests of Grapevine*, Zrinski, Čakovec
* Maceljski, M. et al. (2004): *Pests of Vegetables with a Detailed Overview of Protection Measures against Pests, Diseases, and Weeds*, Zrinski, Čakovec
* Maceljski, M. et al. (1997): *Vegetable Protection against Pests*, Znanje d.d., Zagreb

**Recommended literature**

* Bjeliš, M. (2005): *Olive Protection in Organic Production*, Graf form d.o.o., Split
* Ciglar, I. (1998): *Integrated Protection of Fruit Trees and Vineyards*, Zrinski d.d., Čakovec
* Author group (2010): *Online Script: Major Pests, Diseases, and Weeds in Fruit Growing and Viticulture*, Faculty of Agriculture, Josip Juraj Strossmayer University of Osijek

<http://www.obz.hr/hr/images/Najznacajniji_stetnici_bolesti_i_korovi_u_vocarstvu_i_vinogradarstvu.pdf>

* Igrc Barčić, J., Maceljski, M. (2001): *Environmentally Friendly Plant Protection from Pests*, Zrinski, Čakovec
* Author group (annual issue nos. 1–2): *Plant Protection Bulletin*, HDBZ, Zagreb
* Žužić, I. (2008): *Olives and Olive Oil*, Tipomat, Velika Gorica
* Project website *Winetwork – Grapevine Trunk Diseases and Flavescence Dorée*:

<http://www.winetwork-data.eu/>

**COURSE TITLE**: **VITICULTURE I**

**Course Holders**:

Dr. sc. biotech. Kristijan Damijanić, senior lecturer

Dr. sc. biotech. Marjan Bubola, senior lecturer

**Study programme**: Professional Undergraduate Study of Winemaking

**Course status**: **Compulsory**

**Year**: 1  **Semester**: 1  **ECTS credits**: 6

**Class format (L + E + S + P)**: 2 + 1 + 0 + 2

**1. Course objectives**

To introduce students to the botanical classification and origin of grapevine, as well as the history of viticulture. Overview of the world’s major viticultural regions. Introduction to the basic vegetative and generative organs of the grapevine and its morphological characteristics. Basic grapevine pruning techniques.

**2. Course prerequisites**

None

**3. Learning outcomes at the programme level supported by this course**

* Evaluate the influence of biological, ecological, and physico-chemical elements in agricultural production
* Select equipment, tools, and mechanisation for agricultural production
* Select grapevine varieties appropriate to the agroecological conditions of the region
* Develop a plantation establishment plan
* Assess the influence of terroir, technological maturity, and harvest technology on the target quality of grapes and wine
* Select suitable production technology for young and fruit-bearing vineyards
* Form a targeted grapevine training system
* Manage soil fertility in viticultural production
* Implement viticultural techniques (ampelotechnical measures)
* Develop a grapevine fertilisation model
* Select an appropriate irrigation model for vineyards
* Organise agricultural operations in accordance with relevant regulations
* Develop a plan for organising technological and business processes in agricultural production

**4. Expected learning outcomes at the course level**

* Describe the botanical classification, origin, and distribution of the grapevine
* Categorise the world’s major viticultural regions
* Distinguish the morphological structure of vegetative and generative organs of the grapevine
* Compare advantages and disadvantages of different grapevine pruning techniques

**5. Teaching methods**

☑ Lectures

☑ Auditory exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent assignments

☐ Multimedia and internet

☑ Laboratory

☐ Mentorship

☑ Practical training

**6. Remarks**

–

**7. Student obligations**

Students are required to complete the material from exercises and practical training during the course.

**8. Assessment, evaluation and monitoring of student performance**

Assessment is based on the evaluation of learning outcomes achieved in the course. It is conducted continuously during classes and/or during the final exam, in accordance with the Grading Regulations.

**Continuous assessment**

**:**

| **Learning Outcome** | **Midterm** | **Exercises** | **Practical Training** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- |
| Outcome 1 | 10 | – | 10 | 10% | 20% |
| Outcome 2 | 15 | 5 | – | 10% | 20% |
| Outcome 3 | 25 | 5 | – | 15% | 30% |
| Outcome 4 | 20 | – | 10 | 15% | 30% |

**ECTS contribution**:

Midterm – 3 Exercises – 1 Practical training – 2

**Total**: 70% + 10% + 20% = 100%

**Threshold to pass**: 50%

*A student passes the course if they achieve at least the threshold percentage for each learning outcome.*

**Final exam**

**:**

**Note**: Before taking the exam, students must complete exercises and practical training.

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- |
| Outcome 1 | 20 | – | 10% | 20% |
| Outcome 2 | 20 | – | 10% | 20% |
| Outcome 3 | 30 | – | 15% | 30% |
| Outcome 4 | 10 | 20 | 15% | 30% |

**ECTS contribution**:

Written exam – 4 Oral exam – 2

**Total**: 80% (written) + 20% (oral) = **100%**

**Threshold to pass**: 50%

*A student passes the course if they achieve at least the threshold percentage for each learning outcome.*

**Grading**

A student passes the exam if they achieve at least 50% of the allocated points for each learning outcome.

If all learning outcomes are passed, the total score (percentage) of all passed outcomes is calculated, and the final grade is determined according to the following table:

| **Score Range (%)** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**9. Compulsory literature**

* Mirošević, N., Karoglan Kontić, J. (2008). *Viticulture*. Nakladni zavod Globus, Zagreb
* Maletić, E., Karoglan Kontić, J., Pejić, I. (2008). *Grapevine – Ampelography, Ecology, Breeding*. Školska knjiga, Zagreb

**10. Recommended literature**

* Maletić et al. (2015). *Green Book: Croatian Native Grapevine Varieties*. State Institute for Nature Protection, Zagreb
* Jackson, R. S. (2000). *Wine Science*. Academic Press, New York, USA
* Reynolds, A. G. (2010). *Managing Wine Quality, Volume 1: Viticulture and Wine Quality*. Woodhead Publishing Limited, UK

**COURSE TITLE**: **ENGLISH LANGUAGE III**

**Course Holder**: Mladen Marinac, mag.educ.philol.ang. et hist., lecturer

**Study programme**:

* Professional Undergraduate Study of Mediterranean Agriculture
* Professional Undergraduate Study of Winemaking

**Course status**: **Compulsory**

**Year**: II  **Semester**: III  **ECTS credits**: 3

**Class format (L + E + S + P)**: 1 + 1 + 0 + 0

**1. Course objectives**

The objective of the course is to develop students’ oral and written communication in general English, with a particular focus on language related to Mediterranean agriculture and winemaking. To achieve this, students will work on acquiring vocabulary and applying grammatical structures in professional contexts.

The course also focuses on improving students’ presentation skills through the creation of a poster on a selected professional topic and on developing writing skills by composing a formal business e-mail.

**2. Course prerequisites**

None

**3. Learning outcomes at the programme level supported by this course**

**Mediterranean Agriculture programme:**

* 5.4. Design activities for the presentation, placement, and distribution of agricultural products.

**Winemaking programme:**

* 6.3. Design activities for the presentation, placement, and distribution of products.

**4. Expected learning outcomes at the course level**

1. Use professional vocabulary related to winemaking and Mediterranean agriculture
2. Apply grammatical structures in a professional context
3. Write a business e-mail in English
4. Present a professional topic in the form of a poster

**5. Teaching methods**

☑ Lectures

☑ Auditory exercises

☑ Seminars and workshops

☑ Distance learning

☐ Fieldwork

☑ Independent assignments

☑ Multimedia and internet

☐ Laboratory

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_

**6. Remarks**

–

**7. Student obligations**

Students are required to deliver the presentation during class according to the agreed schedule and fulfil all obligations prescribed by the Study Regulations and the Grading Regulations.

**8. Assessment, evaluation and monitoring of student performance**

Assessment is based on the evaluation of the achievement of course learning outcomes. It is carried out continuously during the course and/or at the final exam, in accordance with the Grading Regulations.

**Continuous assessment**

**:**

| **Learning Outcome** | **Business E-mail** | **Poster Presentation** | **1st Midterm** | **2nd Midterm** | **Reading Professional Texts** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome 1 | – | – | 20% | 20% | 10% | 25% | 50% |
| Outcome 2 | – | – | 10% | 10% | – | 10% | 20% |
| Outcome 3 | 10% | – | – | – | – | 5% | 10% |
| Outcome 4 | – | 20% | – | – | – | 10% | 20% |

**ECTS contribution**:

Business e-mail – 0.3 Poster – 0.3 Midterm 1 – 0.9 Midterm 2 – 0.9 Reading – 0.3

**Total**:

10% + 20% + 30% + 30% + 10% = **100%**

**Threshold to pass**: 50%

*A student passes the course if they achieve the required threshold percentage for each learning outcome.*

**Final exam**

**:**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Max (%)** |
| --- | --- | --- | --- |
| Outcome 1 | 40% | 10% | 50% |
| Outcome 2 | 20% | – | 20% |
| Outcome 3 | 10% | – | 10% |
| Outcome 4 | – | 20% | 20% |

**ECTS contribution**:

Written exam – 2.1 Oral exam – 0.9

**Total**: 80% (written) + 20% (oral) = **100%**

*A student passes the course if they achieve the required threshold percentage for each learning outcome.*

**Grading**

A student passes the exam if they achieve at least 50% of the allocated points for each learning outcome.

If all learning outcomes are passed, the total score (percentage) of all passed outcomes is calculated, and the final grade is determined based on the following scale:

| **Score range (%)** | **Numerical grade** | **ECTS grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**9. Compulsory literature**

* Polić, T. (2009). *English for Agronomists and Enologists*. Rijeka: Polytechnic of Rijeka
* Marinac, M., Bratulić, A. (2020). *English for Agronomic Studies*. Rijeka: Polytechnic of Rijeka
* Selected original texts chosen by the instructor

**10. Recommended literature**

* Ritz, J. (1996). *Croatian-English and English-Croatian Agronomic Dictionary: with Latin-Croatian Index*. Zagreb: Školska knjiga
* O’Sullivan, N., Libbin, J. D. (2011). *Agriculture*. Express Publishing
* Mikulić, G. (1989). *English in Agriculture*. Školska knjiga, Zagreb
* *Oxford Collocations Dictionary for Students of English* (2002). Oxford: Oxford University Press

**COURSE TITLE**: **SEED PRODUCTION**

**Course Holders**:

Dr. sc. biotech. Ivana Dminić Rojnić, senior lecturer

Marin Tomičić, mag.ing.hort., assistant

**Study programme**: Professional Undergraduate Study of Mediterranean Agriculture

**Course status**: **Elective**

**Year**: 2  **Semester**: III  **ECTS credits**: 4

**Class format (L + E + S + P)**: (2 + 1 + 0 + 0)

**Course objectives**

To introduce students to seed characteristics, seed quality and quality control, specifics of seed production, and methods of cultivating seed crops.

**Course prerequisites**

None

**Learning outcomes at the programme level supported by this course**

* 1.1. Evaluate the influence of biological, ecological, and physico-chemical elements in agricultural production
* 1.2. Select equipment, tools, and mechanisation for agricultural production
* 2.1. Assess the quality of planting material
* 2.2. Produce planting material using an appropriate propagation method
* 3.1. Manage soil fertility
* 3.2. Design plant nutrition models
* 3.4. Develop plant protection measures against pests

**Expected learning outcomes at the course level**

1. Interpret basic concepts in seed production and describe seed properties
2. Distinguish types of cultivars and basic seed categories
3. Plan seed production under different agroecological conditions
4. Design seed crop cultivation

**Teaching methods**

☑ Lectures

☑ Exercises

☐ Seminars and workshops

☐ Distance learning

☐ Fieldwork

☑ Independent assignments

☐ Multimedia and internet

☐ Laboratory

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_

**Remarks**

–

**Student obligations**

Students must meet all obligations prescribed by the Study Regulations and the Grading Regulations. During the course, students are required to prepare and deliver a presentation according to the agreed schedule and successfully complete the exercises.

**Assessment, evaluation and monitoring of student performance**

Assessment is based on the evaluation of the achievement of course learning outcomes. Assessment is carried out continuously during the course and/or during the exam period, in accordance with the provisions of the Grading Regulations.

**Continuous assessment**

**:**

| **Learning Outcome** | **Midterm** | **Exercises** | **Activity** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- |
| Outcome 1 | 30 | – | – | 15 | 30 |
| Outcome 2 | 15 | 10 | – | 12.5 | 25 |
| Outcome 3 | 15 | – | 10 | 12.5 | 25 |
| Outcome 4 | – | 10 | 10 | 10 | 20 |

**ECTS contribution**:

Midterm – 2.4 Exercises – 0.8 Activity – 0.8

**Total**: 60% (Midterm) + 20% (Exercises) + 20% (Activity) = **100%**

**Threshold to pass**: 50%

*A student passes the course if they achieve the required threshold percentage for each learning outcome.*

**Final exam**

**:**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Max (%)** |
| --- | --- | --- | --- |
| Outcome 1 | 30 | – | 30 |
| Outcome 2 | 25 | – | 25 |
| Outcome 3 | 25 | – | 25 |
| Outcome 4 | – | 20 | 20 |

**ECTS contribution**:

Written exam – 3.2 Oral exam – 0.8

**Total**: 80% (written) + 20% (oral) = **100%**

*A student passes the course if they achieve the required threshold percentage for each learning outcome.*

**Grading**

A student passes the exam if they achieve at least 50% of the allocated points for each learning outcome.

If all learning outcomes are passed, the total percentage of achieved points is calculated and the final grade is determined based on the following scale:

| **Score range (%)** | **Numerical grade** | **ECTS grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**Compulsory literature**

* Lecture materials
* Kolak, I. (1994). *Seed Production of Arable and Forage Crops*. Nakladni zavod Globus, Zagreb
* Skender, A. et al. (1998). *Seeds and Fruits of Agricultural Crops and Weeds in Croatia*. Faculty of Agriculture in Osijek

**Recommended literature**

* Lešić, R., Pavlek, P., Cvjetković, B. (1993). *Vegetable Seed Production*. Faculty of Agriculture, University of Zagreb
* Welch, K. J. (2010). *Hartmann & Kester’s Plant Propagation: Principles and Practices*. Prentice Hall

**COURSE TITLE**: **LIVESTOCK PRODUCTION IN THE MEDITERRANEAN**

**Course Holder**: Dr. sc. biomed. Damir Šekulja, senior lecturer

**Study programme**: Professional Undergraduate Study of Mediterranean Agriculture

**Course status**: **Compulsory**

**Year**: –  **Semester**: III  **ECTS credits**: IV (4)

**Class format (L + E + S + P)**: 2 + 1 + 0 + 0

**Course objectives**

To introduce students to the fundamentals of livestock production, the functioning of livestock systems in the Mediterranean climate, and the possibilities of raising specific breeds of domestic animals within Mediterranean agricultural holdings.

**Course prerequisites**

None

**Learning outcomes at the programme level supported by this course**

* Plan the breeding of domestic animals
* Select appropriate methods for processing and preserving plant and animal products
* Organise the operations of an agricultural holding in accordance with legal regulations
* Develop a plan for organising technological processes in agricultural production
* Design activities for the presentation, placement, and distribution of agricultural products

**Expected learning outcomes at the course level**

* **Outcome 1**: Evaluate the current state of livestock production domestically and globally, and assess the potential for further development of this sector
* **Outcome 2**: Explain the application of selection in livestock production and define basic selection concepts for different animal species
* **Outcome 3**: Assess the characteristics of individual autochthonous breeds of domestic animals and explain the importance of preserving their genetic potential
* **Outcome 4**: Analyse breed characteristics in the rearing of the most common breeds of cattle, pigs, sheep, goats, horses, rabbits, and poultry
* **Outcome 5**: Apply basic principles of farm animal husbandry to small family farms and evaluate possibilities for increasing profitability through the placement of final products

**Teaching methods**

☑ Lectures

☑ Exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☐ Independent assignments

☐ Multimedia and internet

☐ Laboratory

☑ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_

**Remarks**

Participation in field exercises is a prerequisite for sitting the final exam or for recognising continuous assessment results.

**Student obligations**

Students must complete all field exercises and meet the obligations defined by the Study Regulations and the Grading Regulations.

**Assessment, evaluation and monitoring of student performance**

Assessment is based on evaluating the achievement of course learning outcomes. Assessment is carried out continuously during classes and/or at the final exam, in accordance with the Grading Regulations.

**Continuous assessment**

**:**

| **Learning Outcome** | **1st Midterm** | **2nd Midterm** | **Test** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- |
| Outcome 1 | 5% | – | 5% | 5% | 10% |
| Outcome 2 | 15% | – | 15% | 15% | 30% |
| Outcome 3 | 5% | 5% | 10% | 10% | 20% |
| Outcome 4 | – | 15% | 15% | 15% | 30% |
| Outcome 5 | – | 5% | 5% | 5% | 10% |

**ECTS contribution**:

1.0 (1st midterm) 1.0 (2nd midterm) 2.0 (Test)

**Total**: 25% + 25% + 50% = 100%

**Threshold to pass**: 50%

*A student passes the course if they achieve at least the threshold percentage for each learning outcome.*

**Final exam**

**:**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Max (%)** |
| --- | --- | --- | --- |
| Outcome 1 | 8% | 2% | 10% |
| Outcome 2 | 24% | 6% | 30% |
| Outcome 3 | 16% | 4% | 20% |
| Outcome 4 | 24% | 6% | 30% |
| Outcome 5 | 8% | 2% | 10% |

**ECTS contribution**:

3.2 (Written exam) 0.8 (Oral exam) **Total**: 4.0

**Total**: 80% (written) + 20% (oral) = **100%**

*A student passes the course if they achieve at least the threshold percentage for each learning outcome.*

**Grading**

A student passes the exam if they achieve at least 50% of the allocated points for each learning outcome.

If all learning outcomes are passed, the total score (percentage) of all passed outcomes is calculated and the final grade is determined based on the following scale:

| **Score range (%)** | **Numerical grade** | **ECTS grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**Compulsory literature**

* Uremović, Z., Uremović, M., Pavić, V., Mioč, B., Mužic, S., Janječić, Z. (2002). *Livestock Production*. University textbook, Faculty of Agriculture, University of Zagreb
* Omrečen, S. (1995). *Rabbit Breeding*. Nakladni zavod Globus, Zagreb
* Zvekić, D., Popović, J. (2005). *Animal Feeding on Family Farms*. Neron d.o.o., Bjelovar

**Recommended literature**

* Havranek, J., Rupić, V. (2003). *Milk from Farm to Dairy*. Croatian Dairy Association, Zagreb
* Sabadoš, D. (1996). *Quality Control and Evaluation of Milk and Dairy Products*. Croatian Dairy Association, Zagreb
* Roseg, Đ. (1995). *Milk and Meat Processing*. Nakladni zavod Globus, Zagreb

**COURSE TITLE**: **OLIVE GROWING**

**Course Holder**: Dr. sc. biotech. Marin Krapac, lecturer

**Study programme**: Professional Undergraduate Study in Winemaking

**Course status**: **Compulsory**

**Year**: 2  **Semester**: 4  **ECTS credits**: 3

**Class format (L + E + P)**: 2 + 1 + 0

**1. Course objectives**

Upon successful completion of the course, students will be able to cultivate and manage olive trees and apply agrotechnical and pomotechnical practices to influence the quality of raw material for the production of extra virgin olive oil and preserved olives.

**2. Prerequisites**

None

**3. Programme learning outcomes supported by this course**

* Evaluate the influence of biological, ecological, and physico-chemical factors in agricultural production
* Select equipment, tools, and mechanisation for agricultural production
* Choose plant varieties according to the agroecological conditions of the region
* Select appropriate cultivation technology for Mediterranean crops
* Manage soil resources
* Develop plant nutrition models for Mediterranean crops
* Design plant protection measures for Mediterranean crops

**4. Course-level learning outcomes**

* Recommend olive varieties based on their productive characteristics
* Design an olive orchard including site preparation, ameliorative fertilisation, and irrigation system selection
* Plan maintenance and care systems for young and productive olive trees
* Conduct olive tree pruning according to the desired training system
* Assess the maturity index of olives and recommend appropriate harvesting methods

**5. Teaching methods**

☑ Lectures

☑ Exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent assignments

☐ Multimedia and online resources

☑ Laboratory work

☐ Mentoring

☑ Practical training

**6. Comments**

—

**7. Student obligations**

—

**8. Student assessment, evaluation and progress monitoring during the course and at the exam**

Assessment is based on the evaluation of the learning outcomes acquired during the course. Assessment is carried out continuously during the course and/or at the final exam, in accordance with the Grading Regulations.

**Continuous assessment:**

| **Learning Outcome** | **Midterm** | **Lab Exercises** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- |
| Outcome 1 | 15 | 5 | 10% | 20% |
| Outcome 2 | 10 | 10 | 10% | 20% |
| Outcome 3 | 10 | 10 | 10% | 20% |
| Outcome 4 | 10 | 10 | 10% | 20% |
| Outcome 5 | 10 | 10 | 10% | 20% |

**ECTS distribution**: 2.0 (midterm), 1.0 (lab)

**Total**: 55% (midterm) + 45% (lab) = 100%

**Passing threshold**: 50% total, with minimum threshold per learning outcome met

**Final exam:**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- |
| Outcome 1 | 15 | 10 | 12.5% | 25% |
| Outcome 2 | 15 | 5 | 10% | 20% |
| Outcome 3 | 15 | 5 | 10% | 20% |
| Outcome 4 | 15 | 5 | 10% | 20% |
| Outcome 5 | 10 | 5 | 7.5% | 15% |

**ECTS distribution**: 5.0 (written), 2.0 (oral)

**Total**: 70% + 30% = 100%

**Passing threshold**: Student must meet the minimum threshold for each learning outcome

**Grading**

A student passes the course if they obtain at least 50% of the allocated points for each learning outcome.

If all outcomes are passed, the total score (percentage) is summed and the final grade is awarded based on the following scale:

| **Percentage range** | **Numerical grade** | **ECTS grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**9. Required literature**

* Gucci, R., Cantini, C. (2008): *Pruning and Training Systems for Modern Olive Growing*, Naklada Uliks, Rijeka. ISBN 978-953-7306-12-0
* Bjeliš, M. (2005): *Olive Protection in Organic Production*, Self-published, Solin. ISBN 953-95222-0-X

**10. Supplementary literature**

* Žužić, I. (2011): *Light in Olive Pruning*, “Olea”, Olive Growers’ Association of Istria County. ISBN 978-953-99429-3-7
* Perica, S., Zadro, B. (2007): *Olives and Olive Oil from A to Z*, Naklada Zadro, Zagreb. ISBN 978-953-18207-5-2

**COURSE TITLE**: **OLIVE PROCESSING**

**Course Holder**: Dr. sc. biotech. Urška Kosić, senior lecturer

**Study programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course status**: **Compulsory**

**Year**: 3  **Semester**: V  **ECTS credits**: 6

**Class format (L + E + S + P)**: 2 + 2 + 0 + 1

**1. Course objectives**

To acquire knowledge of standard procedures for oil extraction, refining and storage, table olive production, and waste management in olive mills. To understand the influence of raw material quality and specific processing operations on oil quality. To gain knowledge of oil quality assessment methods and understand the significance of oil quality indicators.

**2. Prerequisites**

None

**3. Programme learning outcomes supported by this course**

* Apply the technology of virgin olive oil production
* Choose appropriate processing and preservation methods for plant and animal products
* Evaluate the quality of agricultural products based on chemical and sensory characteristics
* Organize agricultural business operations in accordance with regulations
* Develop a plan for organizing technological processes in agricultural production
* Design promotional, marketing, and distribution activities for agricultural products

**4. Course-level learning outcomes**

* Distinguish between table olive production processes
* Categorize olive oils based on quality indicators
* Explain oil extraction procedures
* Identify the sources and types of waste generated in olive mills

**5. Teaching methods**

☑ Lectures

☑ Exercises

☐ Seminars and workshops

☐ Distance learning

☐ Fieldwork

☑ Independent tasks

☐ Multimedia and online resources

☑ Laboratory work

☐ Mentoring

☑ Other – Practical training

**6. Comments**

—

**7. Student obligations**

* 100% attendance required for exercises and practical training as per pre-agreed schedule during the semester
* At least 90% of points must be achieved in each written test of exercises

**8. Student assessment, evaluation and progress monitoring during the course and at the exam**

Assessment is based on the evaluation of the learning outcomes acquired during the course. Assessment is carried out continuously during the course and/or at the final exam, in accordance with the Grading Regulations.

**Continuous assessment:**

| **Learning Outcome** | **Midterm** | **Exercises** | **Practical Work** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- | --- |
| Outcome 1 | 10% | — | 5% | 10% | 10% |
| Outcome 2 | 20% | 15% | — | 17.5% | 35% |
| Outcome 3 | 25% | 15% | 5% | 22.5% | 45% |
| Outcome 4 | 10% | — | 5% | 10% | 10% |

**ECTS distribution**: 4.2 (midterms), 1.5 (exercises), 0.3 (practical work)

**Total**: 70% (midterms) + 30% (exercises) + 5% (practical) = 100%

**Passing threshold**: 50% total, with each outcome above threshold

**Final exam:**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- |
| Outcome 1 | 10% | — | 5% | 10% |
| Outcome 2 | 20% | 15% | 17.5% | 35% |
| Outcome 3 | 25% | 20% | 22.5% | 45% |
| Outcome 4 | 10% | — | 5% | 10% |

**ECTS distribution**: 4.2 (written), 1.8 (oral)

**Total**: 70% + 30% = 100%

**Passing threshold**: Student must meet the minimum percentage for each learning outcome

**Grading**

A student passes the exam if they achieve at least 50% of the assigned points for each learning outcome.

If all learning outcomes are passed, the total scores are summed and the final grade is assigned based on the table below:

| **Score range (%)** | **Numerical grade** | **ECTS grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**9. Required literature**

* Koprivnjak, O. (2006): *Virgin Olive Oil – From Olive to Table*, MIH, Poreč
* Koprivnjak, O., Kosić, U. (2014): *Practical Manual for the Olive Processing Course*, Agricultural Department, Polytechnic of Rijeka, Poreč (PDF format)

**10. Supplementary literature**

* Group of authors (2007): *Olives and Olive Oil from A to Z*, Naklada Zadro, Zagreb
* *Maslina* – Professional journal, Slobodna Dalmacija, Split
* *Maslinar* – Professional journal
* *Olivo & Olio* – Professional journal, Edagricole, Bologna

**COURSE TITLE**: **WINEMAKING II**

**Course Holder**: Dr. sc. biotech. Mario Staver, Senior Lecturer

**Study programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course status**: **Compulsory**

**Year**: 2  **Semester**: 4  **ECTS credits**: 5

**Class format (L + E + S + P)**: 2 + 1 + 0 + 2

**1. Course objectives**

Upon completing this course, students will be able to understand the biochemical and microbiological processes affecting alcoholic fermentation, recognize the basic wine aromas (primary, secondary, and tertiary), and carry out wine stabilization and finalization.

**2. Prerequisites**

None.

**3. Programme learning outcomes supported by this course**

* Apply equipment and facilities for agricultural product processing
* Apply the technology of wine production
* Assess the quality of agricultural products based on chemical and sensory characteristics
* Organize the operations of an agricultural enterprise in accordance with legal regulations
* Develop a plan for organizing technological processes in agricultural production
* Design marketing, placement, and distribution activities for agricultural products

**4. Course-level learning outcomes**

* Evaluate the importance of different groups of chemical components in grapes, must, and wine
* Perform chemical analysis of must and basic chemical analysis of wine
* Apply appropriate methods of physico-chemical and biological wine stabilization
* Choose a wine filtration process and the suitable equipment and packaging for bottling
* Distinguish wine faults and diseases and propose prevention and correction methods
* Apply legal regulations in wine production

**5. Teaching methods**

☑ Lectures

☑ Classroom exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent tasks

☐ Multimedia and network

☑ Laboratory work

☐ Mentorship

☑ Practical work

**6. Comments**

—

**7. Student obligations**

—

**8. Student assessment, evaluation and progress monitoring during the course and at the exam**

Assessment is based on the evaluation of achieved learning outcomes. Assessment is conducted continuously during the course and/or during the exam period in accordance with the institutional regulations.

**Continuous assessment:**

| **Learning Outcome** | **Colloquium** | **Lab Exercises** | **Sensory Analysis** | **Practical Work** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- | --- | --- |
| Outcome 1 | 10 | — | — | — | 5% | 10% |
| Outcome 2 | — | 10 | 5 | 10 | 12.5% | 25% |
| Outcome 3 | 5 | 5 | — | 5 | 7.5% | 15% |
| Outcome 4 | 10 | — | — | 10 | 10% | 20% |
| Outcome 5 | 10 | 5 | 5 | — | 10% | 20% |
| Outcome 6 | 10 | — | — | — | 5% | 10% |

**ECTS distribution**: 2.0 (colloquium) + 1.0 (lab) + 0.5 (sensory) + 1.5 (practical)

**Total**: 45% + 20% + 10% + 25% = 100%

A student passes the course if they achieve at least the threshold percentage of points for **each** learning outcome.

**Final exam:**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- |
| Outcome 1 | 10 | — | 5% | 10% |
| Outcome 2 | 10 | 15 | 12.5% | 25% |
| Outcome 3 | 15 | — | 7.5% | 15% |
| Outcome 4 | 10 | 10 | 10% | 20% |
| Outcome 5 | 10 | 10 | 10% | 20% |
| Outcome 6 | 10 | — | 5% | 10% |

**ECTS distribution**: 3.0 (written) + 2.0 (oral)

**Total**: 65% (written) + 35% (oral) = 100%

A student passes the course if they achieve at least the threshold percentage of points for **each** learning outcome.

**Grading**

A student passes the course if they achieve at least 50% of the allocated points for each learning outcome.

If the student passes all learning outcomes, the total percentage is calculated and the final grade is assigned according to the following scale:

| **Percentage range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**9. Required literature**

* Mario Staver, Kristijan Damijanić, Siniša Petrović (2017). *Winemaking II*, Student script, Polytechnic of Rijeka. ISBN: 978-953-6911-90-5
* Stanislava Herjavec (2019). *Winemaking*, Nakladni zavod Globus. ISBN: 978-953-167-277-1
* Zoričić, M. (1996). *Cellar Technology*, Croatian Family Farm, Zagreb
* Zoričić, M. (1998). *Red and Rosé Wines*, Croatian Family Farm, Zagreb

**10. Supplementary literature**

* Mario Staver, Sanja Radeka (2011). *Winemaking I*, Student script, Polytechnic of Rijeka. ISBN: 978-953-6911-65-3

**COURSE TITLE**: **GREENERY**

**Course Holders**:

Dr. sc. Ivana Dminić Rojnić, Senior Lecturer

Dr. sc. Igor Palčić, Assistant

**Study programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course status**: Elective

**Year**: 3  **Semester**: 5  **ECTS credits**: 4

**Class format (L + E + S + P)**: 2 + 0 + 1 + 0

**1. Course objectives**

The objectives of the course are to introduce students to classical and modern plant propagation techniques and to develop skills related to the organization and management of nursery production and nurseries in plant production, with a focus on fruit growing and viticulture.

**2. Prerequisites**

* None

**3. Programme learning outcomes supported by this course**

* Interpret basic concepts in nursery production
* Apply appropriate generative and/or vegetative propagation techniques for specific plant species
* Design and implement generative and/or vegetative propagation systems for selected species
* Define the basic categories and certification of planting material

**4. Course-level learning outcomes**

* Describe the development of nursery production and organization of commercial plant nurseries
* Describe the basic categories of seed and planting material
* Select appropriate vegetative and/or generative propagation methods for plant species of interest
* Choose suitable production technologies for the propagation of specific plant species
* Apply legal regulations relevant to seed and nursery production (Laws and Regulations)

**5. Teaching methods**

☑ Lectures

☑ Classroom exercises

☑ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent tasks

☐ Multimedia and online tools

☐ Laboratory work

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. Comments**

—

**7. Student obligations**

—

**8. Student assessment, evaluation and progress monitoring during the course and at the exam**

Assessment is based on the evaluation of achieved learning outcomes. Assessment is conducted continuously during the course and/or during the exam period in accordance with the institutional regulations.

**Continuous assessment:**

| **Learning Outcome** | **Colloquium** | **Seminar** | **Exercises** | **Practical Work** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- | --- | --- |
| Outcome 1 | 15 | — | — | — | 7.5 | 15 |
| Outcome 2 | 15 | — | — | — | 7.5 | 15 |
| Outcome 3 | — | — | 20 | 10 | 15 | 30 |
| Outcome 4 | — | 10 | 10 | 15 | 12.5 | 35 |
| Outcome 5 | — | 5 | — | — | 2.5 | 5 |

**ECTS contribution**:

* Colloquium: 1.2
* Seminar: 0.6
* Exercises: 1.2
* Practical work: 1.0

**Total**: 30 + 15 + 30 + 25 = 100%

**Pass threshold**: 50%

Student passes the course if they achieve the required threshold for **each** learning outcome.

**Final exam:**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- |
| Outcome 1 | 15 | — | 7.5 | 15 |
| Outcome 2 | 15 | — | 7.5 | 15 |
| Outcome 3 | 25 | 5 | 15 | 30 |
| Outcome 4 | 30 | 5 | 12.5 | 35 |
| Outcome 5 | 5 | — | 2.5 | 5 |

**ECTS contribution**:

* Written exam: 3.6
* Oral exam: 0.4

**Total**: 90% (written) + 10% (oral) = 100%

**Pass threshold**: 50%

Student passes the course if they achieve the required threshold for **each** learning outcome.

**9. Grading**

A student passes the course if they achieve at least **50%** of the allocated points for each learning outcome.

If the student passes all learning outcomes, total points (percentages) from all outcomes are summed, and the final grade is assigned according to the following scale:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**10. Required literature**

* Hartmann, H.T., Kester, D.E., Geneve, R.L., Davies, F.T. (2002). *Hartmann and Kester’s Plant Propagation: Principles and Practices*
* Miljković, I. (1991). *Modern Fruit Growing*
* Mirošević, N. (2007). *Grape Vine Propagation and Nursery Production*
* Ševar, M. et al. (2005). *Fruit and Vine Planting Material Production*

**11. Supplementary literature**

* Lecture materials

**COURSE TITLE:**

**SPECIAL AND SPARKLING WINES**

**Course Holder**: Dr. sc. biotech. Sanja Radeka, Senior Lecturer

**Study Programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course Status**: Compulsory

**Year**: 2  **Semester**: 5  **ECTS Credits**: 4

**Class Format (L + E + S + P)**: 2 + 1 + 0 + 0

**1. Course Objectives**

Upon completion of this course, students will be able to recognize and understand the technological processes used in the production of sparkling and special wines.

**2. Prerequisites**

* None

**3. Programme Learning Outcomes Contributed to by This Course**

* Assess the influence of biological, ecological and physico-chemical factors in agricultural production.
* Select equipment, tools and machinery for agricultural production.
* Apply equipment and facilities in the processing of agricultural products.
* Apply wine production technology.
* Evaluate the quality of agricultural products based on chemical and sensory characteristics.

**4. Expected Learning Outcomes at the Course Level**

* Interpret technological processes in the production of sparkling, pearl, and carbonated wines.
* Distinguish between equipment and packaging used in the production, finishing, and bottling of sparkling, pearl, and carbonated wines.
* Compare sparkling, pearl, and carbonated wines.
* Interpret technological processes in the production of special and fortified wines.
* Distinguish between different types of special and fortified wines.

**5. Types of Instruction**

☑ Lectures

☑ Classroom exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent tasks

☐ Multimedia and network

☑ Laboratory work

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. Comments**

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**7. Student Obligations**

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**8. Assessment, Evaluation and Student Performance Monitoring**

Assessment is based on the evaluation of the acquisition of course learning outcomes. Evaluation is carried out continuously throughout the course and/or at the exam session, in accordance with the Assessment Regulations.

**Continuous Assessment:**

| **Learning Outcome** | **Colloquium** | **Lab Exercises** | **Sensory Analysis** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- | --- |
| Outcome 1 | 10 | 10 | — | 10% | 20% |
| Outcome 2 | 10 | 10 | — | 10% | 20% |
| Outcome 3 | — | — | 15 | 7.5% | 15% |
| Outcome 4 | 20 | 10 | — | 15% | 30% |
| Outcome 5 | — | — | 15 | 7.5% | 15% |

**ECTS Contribution**:

* Colloquium: 2
* Lab Exercises: 1
* Sensory Analysis: 1

**Total**: 40% (Colloquium) + 30% (Lab) + 30% (Sensory) = 100%

**Passing Criteria**: Student must achieve at least the threshold for **each** learning outcome.

**Final Exam:**

*Note: Students must complete all laboratory exercises before taking the exam.*

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- |
| Outcome 1 | 20 | — | 10% | 20% |
| Outcome 2 | 20 | — | 10% | 20% |
| Outcome 3 | — | 15 | 7.5% | 15% |
| Outcome 4 | 30 | — | 15% | 30% |
| Outcome 5 | — | 15 | 7.5% | 15% |

**ECTS Contribution**:

* Written Exam: 3
* Oral Exam: 1

**Total**: 70% (Written) + 30% (Oral) = 100%

**Passing Criteria**: Student must achieve at least the threshold for **each** learning outcome.

**9. Grading Scale**

A student passes the course if they have achieved at least **50%** of the allocated points for each learning outcome.

If all learning outcomes are passed, the total number of achieved points (percentages) is summed and the final grade is determined according to the following table:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**10. Required Literature**

* Internal script: *Special and Sparkling Wines*
* Herjavec, S. (2019). *Winemaking*. Nakladni zavod Globus. ISBN: 978-953-167-277-1
* Sokolić, I. (2002). *The Texture and Sweetness of Wine*, Rijeka

**11. Supplementary Literature**

* Ubligi, M. (1998). *I Profili del Vino. Introduzione all’analisi sensoriale*, Edagricole, Bologna

**COURSE TITLE: IRRIGATION**

**Course Holder**: Dr. sc. biotech. David Gluhić, Senior Lecturer

**Study Programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course Status**: Compulsory

**Year**: 3  **Semester**: 5  **ECTS Credits**: 4

**Class Format (L + E + S + P)**: 2 + 1 + 0 + 1

**1. Course Objectives**

Upon completing this course, students will acquire basic theoretical and practical knowledge on the application of irrigation in the agricultural production of Mediterranean crops, as well as the ability to design irrigation systems for small-scale farms.

**2. Prerequisites**

* None

**3. Programme Learning Outcomes Contributed to by This Course**

* Assess the influence of biological, ecological, and physico-chemical factors in agricultural production.
* Select equipment, tools and machinery for agricultural production.
* Design cultivation plans for Mediterranean crops.
* Select appropriate production technologies for viticultural and fruit-growing crops.
* Select suitable technologies for open-field and protected vegetable production.
* Select suitable technologies for medicinal herb production.
* Manage soil fertility.
* Develop plant nutrition models.
* Choose an irrigation model suitable for a given crop.

**4. Expected Learning Outcomes at the Course Level**

* Evaluate the water requirements of agricultural crops and the use of different water sources for irrigating Mediterranean crops.
* Analyse the water needs of Mediterranean crops.
* Integrate irrigation systems with other elements of Mediterranean crop care.
* Select the appropriate irrigation system for Mediterranean crops.

**5. Types of Instruction**

☑ Lectures

☑ Classroom exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent tasks

☐ Multimedia and network

☑ Laboratory work

☐ Mentorship

☑ Practical work

**6. Comments**

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**7. Student Obligations**

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**8. Assessment, Evaluation and Student Performance Monitoring**

Assessment is based on the evaluation of the achievement of learning outcomes. Evaluation is conducted continuously during the course and/or at the exam session, in accordance with the provisions of the Assessment Regulations.

**Continuous Assessment:**

| **Learning Outcome** | **Colloquium** | **Exercises** | **Independent Task** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- | --- |
| Outcome 1 | 20 | — | — | 10% | 20% |
| Outcome 2 | — | 20 | — | 10% | 20% |
| Outcome 3 | 10 | — | — | 5% | 10% |
| Outcome 4 | — | — | 50 | 25% | 50% |

**ECTS Contribution**:

* Colloquium: 1
* Exercises: 1
* Independent Task: 2

**Total**: 30% + 20% + 50% = 100%

**Passing Criteria**: Students must achieve at least the threshold score for each individual learning outcome.

**Final Exam:**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- |
| Outcome 1 | 20 | — | 10% | 20% |
| Outcome 2 | 20 | — | 10% | 20% |
| Outcome 3 | 10 | — | 5% | 10% |
| Outcome 4 | — | 50 | 25% | 50% |

**ECTS Contribution**:

* Written Exam: 2
* Oral Exam: 2

**Total**: 50% + 50% = 100%

**Passing Criteria**: Students must achieve at least the threshold score for each individual learning outcome.

**Note**: Assessment of learning outcomes in the final exam includes both written and oral components. Prior assessment of the instructional activity “Design of an irrigation project for agricultural crops” is mandatory. Students who have not completed this activity cannot take the full exam during the exam period.

**9. Grading Scale**

Students pass the course if they achieve at least **50%** of the allocated points for **each** learning outcome.

If all learning outcomes are passed, the total score (percentage) of all passed outcomes is summed, and the final grade is determined based on the following table:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**10. Required Literature**

* Tomić, F. (1988). *Irrigation*. Faculty of Agricultural Sciences, University of Zagreb, Zagreb

**11. Supplementary Literature**

* Capra A., Scicolone B. (2016). *Progettazione e gestione degli impianti di irrigazione*, Edagricole
* Dasberg S., Or D. (1999). *Drip Irrigation*, Springer-Verlag, Berlin
* D’Itri F.M., Howard W. (1995). *Subirrigation and Controlled Drainage*, CRC Press

**Summer Semester**

**COURSE TITLE: BIOCHEMISTRY**

**Course Holder**: Dr. sc. natur. Siniša Petrović, prof. of professional studies

**Study Programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course Status**: Compulsory

**Year**: 1  **Semester**: 2  **ECTS Credits**: 5

**Class Format (L + E + S + P)**: L(2) + E(1) + S(0) + P(0)

**1. Course Objectives**

To introduce students to the fundamental chemical structures in living organisms and explain the functioning of organisms at the molecular level. The course also highlights the biochemical basis of processes involved in the processing of the most important Mediterranean crops.

Through exercises, students develop problem-solving skills, conduct experiments, record results, and draw conclusions from the performed measurements.

**2. Prerequisites**

* None

**3. Programme Learning Outcomes Contributed to by This Course**

* Apply wine production technology.
* Apply virgin olive oil production technology.
* Select appropriate methods for processing and preserving plant and animal products.
* Evaluate the quality of agricultural products based on chemical and sensory characteristics.

**4. Expected Learning Outcomes at the Course Level**

* **LO1**: Describe the principles of structure and role of macromolecules in biochemical processes.
* **LO2**: Distinguish and explain beneficial and harmful biochemical processes occurring in the processing of Mediterranean crops.
* **LO3**: Explain basic metabolic pathways and the functioning of organisms at the molecular level.
* **LO4**: Apply laboratory techniques used in the analysis of organic substances.
* **LO5**: Explain the meaning of the genetic code and describe the basic biochemical processes of its transmission and protein synthesis.

**5. Types of Instruction**

☑ Lectures

☐ Classroom exercises

☐ Seminars and workshops

☑ Distance learning

☐ Fieldwork

☐ Independent assignments

☑ Multimedia and online resources

☑ Laboratory work

☐ Mentorship

☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. Student Obligations**

Attending and completing laboratory exercises during the course is a prerequisite for passing.

**7. Assessment, Evaluation and Student Performance Monitoring**

Assessment is based on the evaluation of the achievement of learning outcomes. Evaluation is conducted continuously during the course and/or at the exam session, in accordance with the provisions of the Assessment Regulations.

**Continuous Assessment**

| **Learning Outcome** | **Homework (%)** | **Lab Exercises (%)** | **Colloquium 1 (%)** | **Colloquium 2 (%)** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- | --- |
| LO1 | 1 | 2 | 25 | — | 14 | 28 |
| LO2 | 1 | 2 | 21 | — | 12 | 24 |
| LO3 | 2 | — | — | 24 | 13 | 26 |
| LO4 | — | 8 | — | 2 | 5 | 10 |
| LO5 | — | — | — | 12 | 6 | 12 |

**ECTS Contribution**:

* Homework: 0.2
* Lab Exercises: 0.6
* Colloquium 1: 2.3
* Colloquium 2: 1.9

**Total**: 4 + 12 + 46 + 38 = 100%

**Minimum pass rate**: 50%

**Passing Criteria**: Students must achieve the threshold score for each learning outcome.

**Final Exam**

| **Learning Outcome** | **Written Exam (%)** | **Oral Exam (%)** | **Max (%)** |
| --- | --- | --- | --- |
| LO1 | 25 | 3 | 28 |
| LO2 | 21 | 3 | 24 |
| LO3 | 24 | 2 | 26 |
| LO4 | 4 | 6 | 10 |
| LO5 | 12 | — | 12 |

**ECTS Contribution**:

* Written Exam: 4
* Oral Exam: 1

**Total**: 80% + 20% = 100%

**Passing Criteria**: Students must achieve the threshold score for each learning outcome.

**8. Grading Scale**

Students pass the course if they achieve at least **50%** of the allocated points for **each** learning outcome.

If all learning outcomes are passed, the total score (percentage) is calculated, and the final grade is assigned according to the table below:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**9. Required Literature**

* Petrović, S. (2008). *Introduction to Biochemistry*. Futura, Rijeka.
* Petrović, S. (2010). *Biochemistry Exercises*. Futura, Rijeka.
* Amić, D. (2008). *Organic Chemistry for Students of Agricultural Sciences*. Školska knjiga, Zagreb.

**10. Supplementary Literature**

* Karlson, P. (1993). *Biochemistry*. Školska knjiga, Zagreb.
* Berg, J.M., Tymoczko, J., Stryer, L. (2013). *Biochemistry*. Školska knjiga, Zagreb.
* Pine, H. S. (1994). *Organic Chemistry*. Školska knjiga, Zagreb.

**COURSE TITLE: SOIL SCIENCE**

**Course Holders**:

* Dr. sc. biotech. Melita Zec Vojinović, Lecturer
* Marin Tomičić, MSc in Horticulture, Assistant

**Study Programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course Status**: Compulsory

**Year**: 1  **Semester**: 2  **ECTS Credits**: 4

**Class Format (L + E + S + P)**: 2 + 1 + 0 + 1

**1. Course Objectives**

* To acquaint students with the physical, chemical, and biological characteristics of soil, enabling them to select measures for improving soil condition and fertility, particularly for grapevine production.
* To train students in soil sampling and calculating the required amounts of macroelements necessary for grapevine cultivation.
* To introduce students to soil evaluation procedures for grapevine production.

**2. Prerequisites**

* None

**3. Programme Learning Outcomes Contributed to by This Course**

* Assess the influence of biological, ecological, and physico-chemical elements in agricultural production.
* Select equipment, tools, and machinery for agricultural production.
* Develop a cultivation plan for Mediterranean crops.
* Produce planting material using appropriate propagation methods.
* Select appropriate production technologies for viticulture and fruit growing.
* Select appropriate production technologies for open-field and protected vegetable cultivation.
* Select appropriate production technologies for medicinal plants.
* Manage soil fertility.
* Design plant nutrition models.

**4. Expected Learning Outcomes at the Course Level**

* Identify the impact of soil’s physical, chemical, and biological properties on its productivity and fertility.
* Select appropriate soil improvement measures to enhance viticulture production.
* Conduct field investigations and soil sampling for laboratory analysis.
* Develop fertilisation recommendations based on soil chemical analysis.
* Evaluate soil for agricultural production.

**5. Types of Instruction**

☑ Lectures

☑ Classroom exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent assignments

☑ Multimedia and online tools

☑ Laboratory work

☐ Mentorship

☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. Student Obligations**

Assessment is based on continuous evaluation and/or final examination, aligned with the Regulations on Assessment.

**Continuous Assessment**

| **Learning Outcome** | **Colloquium** | **Assignment** | **Demonstration** | **Test** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- | --- |
| LO1 | 20 | — | — | — | 10 | 20 |
| LO2 | — | 20 | — | — | 12.5 | 20 |
| LO3 | — | — | 15 | — | 7.5 | 15 |
| LO4 | — | 25 | — | — | 10 | 25 |
| LO5 | — | — | — | 20 | 10 | 20 |

**ECTS Weight**:

* Colloquium: 0.5
* Assignment: 2
* Demonstration: 0.5
* Test: 1
* **Total**: 4 ECTS

**Overall**:

* Colloquium: 12.5%
* Assignment: 50%
* Demonstration: 12.5%
* Test: 25%
* **Minimum pass rate**: 50%
* **Total**: 100%

**Passing Criteria**: The student passes the course if the score for each learning outcome is equal to or greater than the defined threshold.

**Final Examination**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Max (%)** |
| --- | --- | --- | --- |
| LO1 | 16 | 4 | 20 |
| LO2 | 25 | — | 25 |
| LO3 | 15 | — | 15 |
| LO4 | 20 | — | 20 |
| LO5 | 16 | 4 | 20 |

**ECTS Weight**:

* Written: 3.5
* Oral: 0.5
* **Total**: 4 ECTS

**Overall**:

* Written exam: 90%
* Oral exam: 10%
* **Total**: 100%

**Passing Criteria**: The student passes the course if the score for each learning outcome is equal to or greater than the defined threshold.

**7. Grading Scale**

If a student has passed all learning outcomes, the final grade is calculated by summing the percentages achieved in each outcome and converting them using the following scale:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Fail (1) | F |

**8. Required Reading**

* Špoljar, A. (2007): *Soil Science and Soil Improvement (Part I)*, script, University of Applied Sciences in Križevci. [Online PDF](https://www.vguk.hr/upload/E_skripte/Tloznanstvo_i_popravak_tla_I_dio.pdf)
* Racz, Z. (2003): *Pedology for Professional Study Students*, Poreč.
* Racz, Z. (2004): *Specific Conditions for Soil Formation and Protection in the Mediterranean Area*, Poreč.
* Teaching materials, professional and scientific articles.

**9. Supplementary Reading**

* Vukadinović, V. & Vukadinović, V. (2016): *Soil, Fertilisation and Yield*, Osijek, electronic edition. [Online PDF](http://ishranabilja.com.hr/literatura/eKnjiga_Tlo-gnojidba-prinos.pdf)

**COURSE TITLE: PLANT PROTECTION 1**

**Course Holder**: Dr. sc. biotech. Ivana Dminić Rojnić, College Professor

**Study Programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course Status**: Compulsory

**Year**: 1  **Semester**: 2  **ECTS Credits**: 4

**Class Format (L + E + S + P)**: 3 + 1 + 0 + 1

**1. Course Objectives**

Through theoretical and practical classes, students will gain knowledge and become familiar with the meaning and importance of plant protection in crop production, harmful plant organisms, plant protection measures and methods, classification of plant protection products, their application, mode of action, associated risks and hazards, and environmental preservation.

**2. Prerequisites**

* None

**3. Programme Learning Outcomes Contributed to by This Course**

* Assess the quality of planting material
* Produce planting material using appropriate propagation methods
* Select appropriate production technology for viticultural and fruit-growing crops
* Select appropriate production technology for vegetables in open fields and protected areas
* Select appropriate production technology for medicinal plants
* Design plant protection measures against pests
* Organise agricultural operations in accordance with regulatory acts

**4. Expected Learning Outcomes at the Course Level**

* Explain the concept of plant protection
* Demonstrate knowledge of plant protection products
* Distinguish between methods and measures for the application of plant protection products
* Explain the impact of protection measures on humans, animals, and the environment

**5. Types of Instruction**

☑ Lectures

☑ Classroom exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent assignments

☐ Multimedia and online tools

☑ Laboratory work

☐ Mentorship

☑ Other: **Practical training**

**6. Student Obligations**

During the course, all students are required to:

1. Complete the practical training
2. Prepare an entomological collection
3. Participate in exercises

Assessment is based on continuous evaluation and/or final examination, aligned with the Regulations on Assessment.

**Continuous Assessment**

| **Learning Outcome** | **Exercises** | **Colloquium** | **Practical Training Report** | **Entomological Collection** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- | --- |
| LO1 | 15 | 15 | 5 | 5 | 20 | 40 |
| LO2 | — | 10 | 5 | — | 7.5 | 15 |
| LO3 | 10 | 15 | 5 | — | 15 | 30 |
| LO4 | — | 10 | 5 | — | 7.5 | 15 |

**ECTS Distribution**:

* Exercises: 1 ECTS
* Colloquium: 2 ECTS
* Practical Training Report: 0.75 ECTS
* Entomological Collection: 0.25 ECTS
* **Total**: 4 ECTS

**Total**:

* Exercises: 25%
* Colloquium: 50%
* Practical Report: 20%
* Collection: 5%
* **Minimum pass rate**: 50%
* **Total**: 100%

**Passing Criteria**: The student passes the course if the score for each learning outcome is equal to or greater than the defined threshold.

**Final Examination**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Max (%)** |
| --- | --- | --- | --- |
| LO1 | 30 | 10 | 40 |
| LO2 | 10 | 5 | 15 |
| LO3 | 25 | 5 | 30 |
| LO4 | 10 | 5 | 15 |

**ECTS Distribution**:

* Written Exam: 3 ECTS
* Oral Exam: 1 ECTS
* **Total**: 4 ECTS

**Total**:

* Written: 75%
* Oral: 25%
* **Total**: 100%

**Passing Criteria**: The student passes the course if the score for each learning outcome is equal to or greater than the defined threshold.

**7. Grading Scale**

If a student has passed all learning outcomes, the final grade is calculated by summing the percentages achieved in each outcome and converting them using the following scale:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Fail (1) | F |

**8. Required Reading**

* Group of authors (2015): *Manual for Safe Handling and Use of Plant Protection Products*, Ministry of Agriculture & Croatian Institute for Plant Protection
* Oštrec, Lj., Gotlin Čuljak, T. (2005): *General Entomology*, Zrinski, Čakovec
* Kišpatić, J. (1988): *General Phytopathology*, Liber, Zagreb
* Ciglar, I. (1998): *Integrated Protection of Fruit Trees and Vineyards*, Zrinski, Čakovec
* Igrc Barčić, J., Maceljski, M. (2001): *Ecologically Acceptable Plant Protection from Pests*, Zrinski, Čakovec

**9. Supplementary Reading**

* Group of authors (annual issues no. 1-2): *Plant Protection Bulletin*, HDBZ, Zagreb
* Ivezić, M. (2003): *Pests of Grapevines and Fruit Trees*, Polytechnic of Požega & Polytechnic of Rijeka
* Jurković, D., Ćosić, J. (2003): *Protection of Vineyards and Orchards from Disease Agents*, Polytechnic of Požega
* Maceljski, M. et al. (2006): *Grapevine Pests*, Zrinski, Čakovec
* Bjeliš, M. (2005): *Olive Protection in Organic Farming*, Graf Form d.o.o., Split
* Maceljski, M. et al. (2004): *Vegetable Pests with an Extensive Overview of Protection from Pests, Diseases, and Weeds*, Zrinski, Čakovec
* Group of authors (2010): *Online Manual: Major Pests, Diseases and Weeds in Fruit and Viticulture*, University of Josip Juraj Strossmayer in Osijek, Faculty of Agriculture, Osijek [PDF](http://www.obz.hr/hr/images/Najznacajniji_stetnici_bolesti_i_korovi_u_vocarstvu_i_vinogradarstvu.pdf)

**COURSE TITLE: English Language II**

**Course Holder**: Mladen Marinac, MA in English and History Education, Lecturer

**Study Programme**:

* Professional Undergraduate Study in Mediterranean Agriculture
* Professional Undergraduate Study in Winemaking

**Course Status**: Compulsory

**Year**: 1  **Semester**: 2  **ECTS Credits**: 3

**Class Format (L + E + S + P)**: 1 + 1 + 0 + 0

**1. Course Objectives**

The aim of the course is to develop students’ oral and written skills in general English, with a special emphasis on the language used in the field of agriculture. The course is focused on improving students’ presentation skills through the delivery of a professional topic, as well as the correct use of language structures in a professional context (vocabulary and grammar). Additionally, students will enhance their academic reading and writing skills through the task of summarizing texts related to agricultural topics.

**2. Prerequisites**

* None

**3. Programme Learning Outcomes Contributed to by This Course**

**Mediterranean Agriculture**:

5.4. Design activities related to the promotion, placement, and distribution of agricultural products.

**Winemaking**:

6.3. Design activities related to the promotion, placement, and distribution of products.

**4. Expected Learning Outcomes at the Course Level**

* Use professional vocabulary in the field of winemaking and Mediterranean agriculture.
* Use grammatical structures in a professional context.
* Write a summary of an agriculture-related article in English.
* Deliver a presentation on a professional topic in English using a computer-based presentation.

**5. Types of Instruction**

☑ Lectures

☐ Classroom exercises

☑ Seminars and workshops

☐ Distance learning

☐ Fieldwork

☑ Independent assignments

☑ Multimedia and network

☐ Laboratory work

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_

**6. Comments**

—

**7. Student Obligations**

Students are required to:

* Give a presentation during class according to an agreed schedule,
* Fulfill all obligations set out in the Study Regulations and Assessment Regulations.

**8. Assessment and Evaluation**

Assessment is based on evaluating the achievement of learning outcomes throughout the semester and/or during the final exam, in accordance with the Assessment Regulations.

**Continuous Assessment**

| **Learning Outcome** | **Summary Writing** | **Presentation** | **1st Colloquium** | **2nd Colloquium** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- | --- |
| LO1 | — | — | 20% | 20% | 8% | 16% |
| LO2 | — | — | 15% | 15% | 8% | 16% |
| LO3 | 10% | — | — | — | 5% | 10% |
| LO4 | — | 20% | — | — | 5% | 10% |

**ECTS Distribution**:

* Summary Writing: 0.3 ECTS
* Presentation: 0.6 ECTS
* 1st Colloquium: 1.05 ECTS
* 2nd Colloquium: 1.05 ECTS

**Total**:

* Summary: 10%
* Presentation: 10%
* 1st Colloquium: 40%
* 2nd Colloquium: 40%
* **Minimum pass rate**: 50%
* **Total**: 100%

**Final Examination**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Max (%)** |
| --- | --- | --- | --- |
| LO1 | 40% | — | 40% |
| LO2 | 30% | — | 30% |
| LO3 | 10% | — | 10% |
| LO4 | — | 20% | 20% |

**ECTS Distribution**:

* Written Exam: 2.4 ECTS
* Oral Exam: 0.6 ECTS

**Total**:

* Written: 80%
* Oral: 20%
* **Total**: 100%

**Passing Criteria**: The student passes the course if the score for each learning outcome is equal to or greater than the defined threshold.

**9. Grading Scale**

If the student passes all learning outcomes, the final grade is determined by the total percentage of all outcomes achieved, using the following scale:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Fail (1) | F |

**10. Required Reading**

* Polić, T. (2009). *English for Agronomists and Enologists*. Rijeka: Polytechnic of Rijeka.
* Selected original professional texts chosen by the lecturer.

**11. Supplementary Reading**

* Drinovac Topalović, M. (2019). *Selection from English Grammar for Students of Karst Agriculture* (course material with texts and exercises). Knin: Polytechnic of Knin.
* Marinac, M., Bratulić, A. (2020). *English for Agronomic Studies* (course material). Rijeka: Polytechnic of Rijeka.
* Matheson, R. (2014). *English for Agribusiness and Agriculture in Higher Education*. Garnet Publishing Ltd.
* Mikulić, G. (1989). *English in Agriculture*, Školska knjiga, Zagreb.
* *Oxford Collocations Dictionary for Students of English* (2002). Oxford University Press.
* O’Sullivan, N., Libbin, J. D. (2011). *Agriculture*, Express Publishing.
* Ritz, J. (1996). *Croatian-English and English-Croatian Agronomic Dictionary with Latin-Croatian Index*, Školska knjiga, Zagreb.

**COURSE TITLE: Vegetable Production**

**Course Holder**: Assist. Prof. Dr. Slavica Dudaš, prof. of professional studies

**Study Programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course Status**: Compulsory

**Year**: 2  **Semester**: 4  **ECTS Credits**: 5

**Class Format (L + E + S + P)**: 3 + 2 + 0 + 1

**1. Course Objectives**

To introduce students to the importance and possibilities of sustainable vegetable cultivation, vegetable species, botanical families, crop rotation, vegetable quality, types and characteristics of bioactive compounds, propagation technologies, use of phytohormones, seedling production, cultivation technologies and care of basic and perennial vegetable species. Students will also learn about fruiting factors, conditions for the transition to the generative phase, and possibilities for vegetable processing, preservation, and storage.

**2. Prerequisites**

* None

**3. Programme Learning Outcomes Contributed to by This Course**

1.1. Assess the impact of biological, ecological, and physicochemical elements in agricultural production.

1.2. Select equipment, tools, and machinery for agricultural production.

1.4. Develop a cultivation plan for Mediterranean crops.

2.1. Assess the quality of planting material.

2.2. Produce planting material using appropriate propagation methods.

2.4. Select suitable technology for vegetable production in open fields and protected areas.

3.1. Manage soil fertility.

3.2. Develop models for plant nutrition.

3.3. Implement pomotechnical and ampelotechnical measures.

3.4. Design plant protection measures.

3.5. Select an irrigation model suitable for a given crop.

5.2. Organize tasks on an agricultural holding in accordance with regulations.

5.3. Create a plan for organizing technological processes in agricultural production.

**4. Expected Learning Outcomes at the Course Level**

1. Explain vegetable characteristics and their seed traits, species classification, and botanical families.
2. Assess the quality, health, and nutritional value of vegetables based on their characteristics.
3. Design a crop rotation plan.
4. Define the necessary conditions and technologies for vegetable production.
5. Explain methods of vegetable storage and preservation.

**5. Types of Instruction**

☑ Lectures

☑ Classroom exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent assignments

☐ Multimedia and online content

☐ Laboratory work

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. Student Obligations**

Assessment, evaluation, and monitoring of student work are conducted continuously during the semester and in the examination period.

Assessment is based on the evaluation of the achievement of learning outcomes and is carried out in accordance with the institutional assessment regulations.

**Continuous Assessment**

| **Learning Outcome** | **Midterm I** | **Midterm II** | **Test** | **Presentation** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- | --- |
| LO1 | 10 | — | 20 | — | 10% | 30% |
| LO2 | 15 | — | — | — | 7.5% | 15% |
| LO3 | — | — | 15 | — | 7.5% | 15% |
| LO4 | — | 20 | — | 20 | 15% | 30% |
| LO5 | — | 10 | — | — | 5% | 10% |

**ECTS Distribution**:

* Midterm I: 1 ECTS
* Midterm II: 1.5 ECTS
* Test: 2 ECTS
* Presentation: 0.5 ECTS

**Total Contribution**:

* Midterm I: 25%
* Midterm II: 30%
* Test: 35%
* Presentation: 10%
* **Minimum pass rate**: 50%
* **Total**: 100%

The student passes the course if they achieve at least the defined threshold for each learning outcome.

**Final Examination**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Max (%)** |
| --- | --- | --- | --- |
| LO1 | — | 30 | 30% |
| LO2 | 15 | — | 15% |
| LO3 | 15 | — | 15% |
| LO4 | 30 | — | 30% |
| LO5 | 10 | — | 10% |

**ECTS Distribution**:

* Written Exam: 3.5 ECTS
* Oral Exam: 1.5 ECTS

**Total**:

* Written: 70%
* Oral: 30%
* **Total**: 100%

**7. Grading Scale**

The student passes the course if they achieve at least 50% of the defined points for each learning outcome.

If all learning outcomes are passed, the final grade is calculated based on the total percentage using the following scale:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Fail (1) | F |

**8. Required Reading**

* Internal course materials
* Lešić, R., Borošić, J., Buturac, I., Herak Ćustić, M., Poljak, M., Romić, D. (2016). *Vegetable Production*. Zrinski d.d., Čakovec

**9. Supplementary Reading**

* Matotan, Z. (2004). *Modern Vegetable Production*. Globus, Zagreb
* Maceljski, M., Cvjetković, B., Ostojić, Z., Igrc Barčić, J., Pagliarini, N., Oštrec, L., Barić, K., Čizmić, I. (2004). *Vegetable Pests: Including Comprehensive Overview of Pest, Disease, and Weed Control*. Zrinski, Čakovec

**COURSE TITLE: Agricultural Microbiology**

**Course Holder**: Dr. Urška Kosić, Senior Lecturer

**Study Programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course Status**: Elective

**Year**: 1  **Semester**: 2  **ECTS Credits**: 4

**Class Format (L + E + S + P)**: 2 + 1 + 0 + 0

**1. Course Objectives**

To familiarize students with the role and importance of microorganisms in nutrient cycling in nature. Students will learn about the classification of microorganisms and their significance, as well as their roles in food production and spoilage.

**2. Prerequisites**

* None

**3. Programme Learning Outcomes Contributed to by This Course**

* Apply equipment and facilities in agricultural product processing.
* Apply wine production technology.
* Apply virgin olive oil production technology.
* Select appropriate methods of processing and preservation of plant and animal products.

**4. Expected Learning Outcomes at the Course Level**

1. Understand basic concepts of microbiology and cell types.
2. Acquire basic microscopy techniques.
3. Distinguish between different types of microorganisms.
4. Classify microorganisms relevant to food production.

**5. Types of Instruction**

☑ Lectures

☑ Classroom exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent assignments

☐ Multimedia and online content

☐ Laboratory work

☐ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. Student Obligations**

* 100% attendance in exercises and practical lessons as per the agreed schedule during the semester.
* Minimum 60% of the total score in each written exercise test.

**7. Student Assessment**

Assessment is based on the evaluation of the achievement of learning outcomes. Assessment is conducted continuously during the course and/or during the final exam period, in accordance with the institutional assessment regulations.

**Continuous Assessment**

| **Learning Outcome** | **Midterm Exam (%)** | **Independent Task (%)** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- |
| LO1 | 30 | — | 15 | 30 |
| LO2 | 20 | 10 | 15 | 30 |
| LO3 | 30 | — | 15 | 30 |
| LO4 | 10 | — | 5 | 10 |

**ECTS Contribution**:

* Midterm: 4.5
* Independent Task: 0.5

**Total**:

* Midterm: 90%
* Independent Task: 10%
* **Minimum Pass Rate**: 50%
* **Total**: 100%

**Final Exam**

| **Learning Outcome** | **Written Exam (%)** | **Oral Exam (%)** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- |
| LO1 | 30 | — | 15 | 30 |
| LO2 | 20 | 10 | 15 | 30 |
| LO3 | 30 | — | 15 | 30 |
| LO4 | 10 | — | 5 | 10 |

**ECTS Contribution**:

* Written Exam: 4.5
* Oral Exam: 0.5
* **Minimum Pass Rate**: 50%
* **Total**: 100%

**8. Grading Scale**

The student passes the course if they achieve at least 50% of the allocated points for each learning outcome.

If all learning outcomes are passed, the total score is calculated and the final grade is determined according to the following scale:

| **Score Range (%)** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Fail (1) | F |

**9. Required Reading**

* Duraković, S., Redžepović, S. (2003). *Introduction to General Microbiology – Book I*
* Duraković, S., Redžepović, S. (2003). *Introduction to General Microbiology – Book II*

**10. Supplementary Reading**

* Duraković, S., Duraković, L. (2001). *Food Microbiology – Basics and Achievements – Book I*
* Duraković, S., Duraković, L. (2001). *Food Microbiology – Basics and Achievements – Book II*

**COURSE TITLE: Viticulture II**

**Course Holder**: Dr. Marijan Bubola, Professor of Professional Studies

**Study Programme**: Professional Undergraduate Study in Winemaking

**Course Status**: Compulsory

**Year**: 1  **Semester**: 2  **ECTS Credits**: 5

**Class Format (L + E + S + P)**: 2 + 1 + 0 + 3

**1. Course Objectives**

To acquire the knowledge and skills necessary for executing cane tying in a productive vineyard and the training of green and mature shoots in a young vineyard for shaping the desired training system. The course covers the interpretation of the general principles of green pruning and the effects of specific green pruning practices on yield per vine, grape ripening, and quality. It includes practical implementation of green pruning techniques, identification of phenological stages during the annual biological cycle of the vine, understanding the influence of climatic factors, soil, and topography on vine growth and development, and the potential grape quality. The course also provides knowledge for assessing site suitability for vineyard establishment.

**2. Course Admission Requirements**

None.

**3. Programme Learning Outcomes Contributed to by This Course**

* Develop a vineyard establishment plan.
* Evaluate the influence of terroir, technological maturity, and harvest methods on achieving the desired grape and wine quality.
* Select appropriate technology for young and productive vineyard management.
* Form the desired grapevine training system.
* Manage soil fertility in viticulture.
* Implement ampelotechnical measures in vineyard production.
* Develop a grapevine nutrition model.
* Choose an appropriate irrigation model for grapevines.
* Organize agricultural operations in accordance with legal regulations.
* Develop a plan for the organization of technological and operational processes in agricultural production.

**4. Expected Learning Outcomes at the Course Level**

* Explain the general principles of green pruning and the impact of specific green pruning practices on vine yield, grape ripening, and quality.
* Plan the implementation of specific green pruning practices according to the targeted type of viticultural production.
* Distinguish between the phenological stages of grapevine growth and development throughout the annual biological cycle.
* Explain the influence of specific climatic factors, soil, and vineyard site on grape yield and composition.

**5. Types of Instruction**

☑ Lectures

☑ Classroom exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☑ Independent assignments

☐ Multimedia and online content

☐ Laboratory work

☐ Mentorship

☑ Other: Practical training

**6. Comments**

–

**7. Student Obligations**

–

**8. Student Assessment**

Assessment is based on the evaluation of the achievement of learning outcomes. Assessment is conducted continuously during the course and/or during the final exam period, in accordance with the institutional regulations.

**Continuous Assessment**

| **Learning Outcome** | **Midterm Exam** | **Assignment** | **Practical Demonstration** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- |
| LO1 | 15 | — | 5 | 10 | 20 |
| LO2 | 20 | — | 5 | 12.5 | 25 |
| LO3 | 10 | 10 | — | 10 | 20 |
| LO4 | 35 | — | — | 17.5 | 35 |

**ECTS Contribution**:

* Midterm Exams: 4
* Assignment: 0.5
* Practical Demonstration: 0.5

**Total**:

* 80% (Midterm)
* 10% (Assignment)
* 10% (Practical Work)
* **Minimum Pass Rate per LO**: 50%
* **Total**: 100%

**Final Exam**

| **Learning Outcome** | **Written Exam (%)** | **Oral Exam (%)** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- |
| LO1 | 16 | 4 | 10 | 20 |
| LO2 | 20 | 5 | 12.5 | 25 |
| LO3 | 16 | 4 | 10 | 20 |
| LO4 | 28 | 7 | 17.5 | 35 |

**ECTS Contribution**:

* Written Exam: 4
* Oral Exam: 1
* **Total**: 100%
* **Minimum Pass Rate per LO**: 50%

**9. Grading Criteria**

The student passes the course if they achieve at least 50% of the allocated points for each learning outcome.

If all learning outcomes are passed, the total score is calculated and the final grade is determined according to the following scale:

| **Score Range (%)** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Fail (1) | F |

**10. Required Reading**

* Mirošević, N., Karoglan Kontić, J. (2008). *Viticulture*. Nakladni zavod Globus, Zagreb.
* Maletić, E., Karoglan Kontić, J., Pejić, I. (2008). *Grapevine – Ampelography, Ecology, Breeding*. Školska knjiga, Zagreb.

**11. Supplementary Reading**

* Keller, M. (2015). *The Science of Grapevines – Anatomy and Physiology*. Academic Press, London, UK.
* Fregoni, M. (2006). *Viticoltura di qualità*. Tecniche Nuove, Milan, Italy.
* Jackson, R.S. (2008). *Wine Science*. Academic Press, New York, USA.

**COURSE TITLE: Basics of Beekeeping**

**Course Holder**: Dr. Damir Šekulja, Professor of Professional Studies

**Study Programme**: Professional Undergraduate Study in Mediterranean Agriculture

**Course Status**: Elective

**Year**: –  **Semester**: IV  **ECTS Credits**: 4

**Class Format (L + E + S + P)**: 2 + 1 + 0 + 0

**1. Course Objectives**

To introduce students to the fundamentals of beekeeping, the functioning of beekeeping production in the Mediterranean climate, and the potential for practical beekeeping within a Mediterranean agricultural holding.

**2. Course Admission Requirements**

None.

**3. Programme Learning Outcomes Contributed to by This Course**

* Plan the breeding of domestic animals.
* Apply equipment and facilities in the processing of agricultural products.
* Select appropriate methods of processing and preserving plant and animal products.
* Evaluate the quality of agricultural products based on chemical and sensory characteristics.

**4. Expected Learning Outcomes at the Course Level**

* **LO1**: Evaluate the potential for commercial use of bees, specific bee products, and the methods of their collection.
* **LO2**: Analyse the application of selection in beekeeping, the characteristics of the local grey bee, and the reasons for using this particular breed.
* **LO3**: Identify the symptoms of bee diseases and the methods of treatment.
* **LO4**: Analyse modern queen rearing methods and different types of beekeeping production depending on the desired final product.
* **LO5**: Assess the possibilities for increasing beekeeping profitability through the application of modern beekeeping techniques.

**5. Types of Instruction**

☑ Lectures

☑ Exercises

☐ Seminars and workshops

☐ Distance learning

☑ Fieldwork

☐ Independent assignments

☐ Multimedia and online content

☐ Laboratory work

☑ Mentorship

☐ Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. Comments**

In order to take the final exam or have continuous assessment recognized, students must complete all exercises as part of fieldwork.

**7. Student Assessment**

Assessment is based on the evaluation of learning outcomes achievement. Assessment is conducted continuously during the course and/or in the final exam period, in accordance with the Regulations on Grading.

**Continuous Assessment**

| **Learning Outcome** | **Midterm 1** | **Midterm 2** | **Test** | **Threshold (%)** | **Max (%)** |
| --- | --- | --- | --- | --- | --- |
| LO1 | 5% | – | 5% | 5% | 10% |
| LO2 | 15% | – | 5% | 10% | 20% |
| LO3 | 5% | 5% | 20% | 15% | 30% |
| LO4 | – | 15% | 5% | 10% | 20% |
| LO5 | – | 5% | 15% | 10% | 20% |

**ECTS Contribution**:

* Midterms: 2.0
* Test: 2.0
* **Total**: 100%
* **Minimum pass rate per LO**: 50%

**Final Exam**

| **Learning Outcome** | **Written Exam** | **Oral Exam** | **Max (%)** |
| --- | --- | --- | --- |
| LO1 | 8% | 2% | 10% |
| LO2 | 24% | 6% | 30% |
| LO3 | 24% | 6% | 30% |
| LO4 | 16% | 4% | 20% |
| LO5 | 8% | 2% | 10% |

**ECTS Contribution**:

* Written Exam: 3.2
* Oral Exam: 0.8
* **Total**: 100%
* **Minimum pass rate per LO**: 50%

**8. Grading Criteria**

The student passes the course if they achieve at least 50% of the allocated points for each learning outcome.

If all learning outcomes are passed, the total score is calculated and the final grade is determined according to the following scale:

| **Score Range (%)** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Fail (1) | F |

**9. Required Reading**

* Laktić, Z., & Šekulja, D. (2008). *Modern Beekeeping*, Nakladni Zavod Globus, Zagreb.
* Pohl, F. (2016). *Modern Beekeeping: Care and Breeding of Bee Colonies*, Mozaik knjiga, Zagreb.

**10. Supplementary Reading**

* Belčić et al. (1982). *Beekeeping*, Znanje, Zagreb.
* Koeniger, G., Koeniger, N., Ellis, J., & Connor, L. (2014). *Mating Biology of Honey Bees (Apis mellifera)*, Wicwas Press LLC, Michigan.
* Laktić, Z. et al. (2005). *Beekeeping Manual*, Grafika, Osijek.
* Tiesler, F.-K., Bienefeld, K., Büchler, R. (2016). *Selection in Honey Bees*, Buschhausen Verlag, Herten. *(in German)*
* Tiesler, F.-K., Englert, E. (2013). *Raising and Using Queens*, Buschhausen Verlag, Herten. *(in German)*

**Course Title:** Preservation of Agricultural and Beekeeping Products

**Course Holder:** Dr. sc. biotech. Urška Kosić, Senior Lecturer

**Study Program:** Professional Undergraduate Study in Mediterranean Agriculture

**Course Status:** Compulsory

**Year:** III **Semester:** VI **ECTS Credits:** 5

**Course Delivery (L + E + S + P):** 2 + 1 + 0 + 0

**Course Objectives**

Familiarization with preservation methods and technological characteristics of different preservation techniques for agricultural products. Understanding proper methods of preservation and storage of agricultural products.

**Admission Requirements**

None

**Program-Level Learning Outcomes to Which the Course Contributes**

* Apply equipment and facilities in the processing of agricultural products.
* Select appropriate methods for processing and preserving plant and animal products.
* Evaluate the quality of agricultural products based on chemical and sensory characteristics.
* Organize agricultural enterprise operations in accordance with regulatory acts.

**Expected Learning Outcomes at the Course Level**

* Acquire basic concepts of preservation and classify agricultural raw materials.
* Distinguish the causes of food spoilage.
* Differentiate preservation methods.
* Apply preservation methods in households.

**Teaching Methods**

* Lectures
* Classroom exercises
* Fieldwork
* Independent assignments
* Laboratory work

**Student Obligations**

* 100% attendance at exercises and practical classes at pre-arranged times during the semester.
* At least 60% of points achieved in each written exercise test.

Student evaluation, assessment, and monitoring are continuous during the semester and at the exam session.

Assessment is based on the achievement of course learning outcomes. Evaluation is carried out continuously during classes and/or at the exam, in accordance with the Regulations on Assessment.

**Continuous Assessment**

| **Learning Outcomes** | **Midterm** | **Independent Assignments** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- |
| LO 1 | 20% | 10% | 20% |  |
| LO 2 | 20% | 10% | 20% |  |
| LO 3 | 20% | 10% | 15% | 30% |
| LO 4 | 20% | 10% | 15% | 30% |

**ECTS Contribution:** 4 (midterm), 1 (independent assignments)

**Total:** 100%

A student passes the course if, for each learning outcome, they achieve a percentage equal to or greater than the defined threshold.

**Final Exam**

| **Learning Outcomes** | **Written Exam** | **Oral Exam** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- |
| LO 1 | 20% | 10% | 20% |  |
| LO 2 | 20% | 10% | 20% |  |
| LO 3 | 20% | 10% | 15% | 30% |
| LO 4 | 20% | 10% | 15% | 30% |

**ECTS Contribution:** 4 (written), 1 (oral)

**Total:** 100%

A student passes the course if, for each learning outcome, they achieve a percentage equal to or greater than the defined threshold.

**Grading**

A student passes the exam if, for each learning outcome, they achieve at least 50% of the allocated points.

If the student passes all course learning outcomes, the total percentage of points is summed, and the final grade is determined according to the following scale:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**Mandatory Literature**

* Mujić I., Alibabić V. *Tehnološki procesi konzerviranja hrane* [Technological Processes of Food Preservation], Bihać, 2006.
* Lovrić T., Piližota V. *Konzerviranje i prerada voća i povrća* [Preservation and Processing of Fruits and Vegetables], Zagreb, 1994.

**Supplementary Literature**

* *Improving the Thermal Processing of Foods*, Richardson.
* Fellows, *Food Processing Technology: Principles and Practice* (Second Edition).
* Greensmith, *Practical Dehydration* (Second Edition).
* *Food Preservation by Pulsed Electric Fields: From Research to Application.*
* Barrett, Somogyi, Ramaswamy, *Processing Fruits: Science and Technology* (Second Edition).
* Smith, Cash, Nip, Hui, *Processing Vegetables: Science and Technology.*

**Course Title:** Aromatic and Medical Plants

**Course Holder:** Assist. Prof. Dr. sc. biotech. Slavica Dudaš, Lecturer in Professional Studies

**Study Program:** Professional Undergraduate Study in Sustainable Agrotourism

**Course Status:** Compulsory

**Year:** II **Semester:** III **ECTS Credits:** 4

**Course Delivery (L + E + S + P):** 2 + 1 + 0 + 1

**Course Objectives**

To acquaint students with the importance and possibilities of sustainable cultivation of aromatic and medicinal plants, the concept and standards of quality, types and characteristics of bioactive substances, basic processing methods, and the application of aromatic and medicinal plants. To familiarize students with the cultivation technology of the main types of aromatic and medicinal plants. To acquaint students with the possibilities of producing flavored products based on wine and strong alcoholic beverages.

**Admission Requirements**

None

**Program-Level Learning Outcomes to Which the Course Contributes**

* Select the optimal arrangement and design of an agrotourism farm considering available resources.
* Choose sustainable methods of supply, procurement, and sales in agrotourism farm operations.
* Select an agricultural production system in line with available resources.
* Integrate fundamental principles of chemistry, biochemistry, microbiology, and botany in agricultural production.
* Assess the suitability of ecological and edaphic factors for sustainable plant and animal production.
* Apply production technologies for agricultural products and livestock rearing with respect to available resources.
* Design a care model for selected species, varieties, and breeds.
* Apply different methods of finishing, sorting, and preparing plant and animal raw materials for processing.
* Select methods of processing and preserving plant raw materials.
* Evaluate storage conditions for reserves of raw materials and final products of plant and animal origin.

**Expected Learning Outcomes at the Course Level**

1. Identify aromatic and spice plants and the types of bioactive substances of selected species.
2. Explain the conditions for plantation establishment and cultivation technologies of selected species and varieties of aromatic and spice plants.
3. Decide on methods of processing and application of selected aromatic and spice plants depending on their characteristics.
4. Produce an extract, macerate, spice oil, or essential oil.
5. Assess the quality of aromatic and spice plant raw material based on its characteristics and bioactive substance content.

**Teaching Methods**

* Lectures
* Classroom exercises
* Laboratory work

**Student Obligations**

Evaluation, assessment, and monitoring of student work are conducted continuously during the semester and at the exam session.

Assessment is based on evaluating the achievement of the course learning outcomes and is carried out continuously during classes and/or at the exam, in accordance with the Regulations on Assessment.

**Continuous Assessment**

| **Learning Outcomes** | **Midterm I** | **Midterm II** | **Lab Exercise (Maceration/Extraction)** | **Test** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- | --- | --- |
| LO 1 |  |  | 20 | 10% | 20% |  |
| LO 2 |  | 20 |  | 10% | 20% |  |
| LO 3 | 20 |  |  | 10% | 20% |  |
| LO 4 |  |  | 20 | 10% | 20% |  |
| LO 5 | 20 |  |  | 10% | 20% |  |

**ECTS Contribution:** Midterm I – 1.75; Midterm II – 0.75; Lab – 0.75; Test – 0.75

**Total:** 100%

A student passes the course if, for each learning outcome, they achieve a percentage equal to or greater than the defined threshold.

**Final Exam**

| **Learning Outcomes** | **Written Exam** | **Oral Exam** | **Max** |
| --- | --- | --- | --- |
| LO 1 |  | 20 | 20% |
| LO 2 | 20 |  | 20% |
| LO 3 | 20 |  | 20% |
| LO 4 | 10 | 10 | 20% |
| LO 5 | 20 |  | 20% |

**ECTS Contribution:** Written exam – 3; Oral exam – 1

**Total:** 100%

A student passes the course if, for each learning outcome, they achieve a percentage equal to or greater than the defined threshold.

**Grading**

A student passes the exam if, for each learning outcome, they achieve at least 50% of the allocated points.

If the student passes all course learning outcomes, the achieved percentages are summed, and the final grade is determined as follows:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**Mandatory Literature**

* Internal teaching materials.
* Voća, S., Bilandžija, D., Radman, S., Šic Žlabur, S. *Ekološki uzgoj aromatičnog i ljekovitog bilja. Priručnik.* Zagrebačka županija, Zagreb, 2020.

[Link](https://www.zagrebacka-zupanija.hr/media/filer_public/db/24/db247141-efcf-48bc-a9a2-8d8734c9e88d/prirucnik_ekoloski_uzgoj_ljekovitog_i_aromaticnog_bilja.pdf)

* Stepanović, B., Radanović, D., Turšić, I., Nemčević, N., Ivanec, J. *Uzgoj ljekovitog i aromatičnog bilja.* Jan Spider, Pitomača, 2009.

**Supplementary Literature**

* Šilješ, I., Grozdanić, Đ., Grgesina, I. *Poznavanje, uzgoj i prerada ljekovitog bilja.* Školska knjiga, Zagreb, 1992.
* Keršek, E. *Ljekovito bilje u vinu i rakiji.* VBZ, Zagreb, 2006.

**Course Title:** Landscape Design

**Course Holder:** Mr. sc. Zrinka Brajan, Lecturer

**Study Program:** Professional Undergraduate Study in Mediterranean Agriculture

**Course Status:** Elective

**Year:** III **Semester:** VI **ECTS Credits:** 4

**Course Delivery (L + E + S + P):** 2 + 1 + 0 + 0

**Course Objectives**

To introduce students to the legal framework within the field of landscape design. To study and acquire knowledge of the historical development of gardens and methods of historical heritage in landscape architecture. To define the plant as a design element. To acquire knowledge of architectural elements and urbanism in the field of landscape design and types of landscapes. To learn about plant species used in landscape design and classify them according to their purpose. To acquire knowledge of standards for landscaping and green area maintenance.

**Admission Requirements**

None

**Program-Level Learning Outcomes to Which the Course Contributes**

* Assess the impact of biological, ecological, and physico-chemical elements in agricultural production.
* Develop a cultivation plan for Mediterranean crops.
* Organize agricultural enterprise operations in accordance with normative acts.

**Expected Learning Outcomes at the Course Level**

* Identify concepts and recognize the basic elements of landscapes.
* Recognize methods of landscape design using plants, with reference to historical development, and prepare and interpret a conceptual design plan.
* Differentiate, select, and identify ornamental Mediterranean plant species for different habitats and uses in space.
* Identify the water requirements of plant species, define and group plants, evaluate and recognize them in relation to ecological conditions and required agrotechnics.
* Distinguish different methods of propagation and planting, and identify ornamental plants.

**Teaching Methods**

* Lectures
* Classroom exercises
* Seminars and workshops
* Fieldwork
* Independent assignments

**Student Obligations**

Evaluation, assessment, and monitoring of student work are conducted continuously during the semester and at the exam session.

Assessment is based on evaluating the achievement of the course learning outcomes and is carried out continuously during classes and/or at the exam, in accordance with the Regulations on Assessment.

**Continuous Assessment**

| **Learning Outcomes** | **Homework (%)** | **Exercises (%)** | **Midterm I (%)** | **Midterm II (%)** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- | --- | --- |
| LO 1 |  |  | 10 |  | 5 | 10 |
| LO 2 | 8 | 8 | 10 |  | 13 | 26 |
| LO 3 |  |  | 20 |  | 10 | 20 |
| LO 4 |  |  |  | 20 | 10 | 20 |
| LO 5 |  | 4 |  | 20 | 12 | 24 |

**ECTS Contribution:** Homework – 0.32; Exercises – 0.48; Midterm I – 1.6; Midterm II – 1.6

**Total:** 100%

A student passes the course if, for each learning outcome, they achieve a percentage equal to or greater than the defined threshold.

**Final Exam**

| **Learning Outcomes** | **Written Exam** | **Oral Exam** | **Threshold** | **Max** |
| --- | --- | --- | --- | --- |
| LO 1 | 6 | 4 | 5 | 10 |
| LO 2 | 18 | 8 | 13 | 26 |
| LO 3 | 18 | 2 | 10 | 20 |
| LO 4 | 18 | 2 | 10 | 20 |
| LO 5 | 20 | 4 | 12 | 24 |

**ECTS Contribution:** Written exam – 3.2; Oral exam – 0.8

**Total:** 100%

A student passes the course if, for each learning outcome, they achieve a percentage equal to or greater than the defined threshold.

**Grading**

A student passes the exam if, for each learning outcome, they achieve at least 50% of the allocated points.

If the student passes all course learning outcomes, the achieved percentages are summed, and the final grade is determined as follows:

| **Percentage Range** | **Numerical Grade** | **ECTS Grade** |
| --- | --- | --- |
| 90.00 – 100.00 | Excellent (5) | A |
| 75.00 – 89.99 | Very Good (4) | B |
| 60.00 – 74.99 | Good (3) | C |
| 50.00 – 59.99 | Sufficient (2) | D |
| 0.00 – 49.99 | Insufficient (1) | F |

**Mandatory Literature**

* Aničić, B. et al.: *Krajolik – Sadržajna i metodska podloga krajobrazne osnove Hrvatske*, Zagreb: Ministry of Physical Planning, Construction and Housing, Institute for Spatial Planning, 1999.
* Borzan, Ž.: *Indeks drveća i grmlja*, Faculty of Forestry, Zagreb, 1999.
* Jelinkar, M.: *Mala enciklopedija vrtlarstva*, Zagreb: Prosvjeta, 1986.
* Šilić, Ć.: *Ukrasno drveće i grmlje*, Zagreb: Svjetlost, 1990.

**Supplementary Literature**

* Jurković, S.: *Park ostvarenje sna: teorija vrtne umjetnosti*, Zagreb: Faculty of Architecture, University of Zagreb, Naklada Jurčić, 2004.
* Brooks, J.: *Dizajn vrta*, Zagreb: Znanje, 2004.
* Šilić, Č.: *Atlas drveća i grmlja*, Zagreb: Svjetlost, 1990.