

Course name: Herbal plants

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| ECTS | 4 |
| Course status | <i>Facultative</i> |
| Course final assessment /evaluation of outcomes | <i>Exam</i> |
| Prerequisite | <i>Interest in plant biology, organic chemistry and phytotherapy</i> |

Main field of study:

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| Educational profile | <i>General academic</i> |
| Code of studies and education level | <i>(bachelor/ master)</i> |
| Semester of studies | <i>summer</i> |
| Language of instructions | <i>English</i> |

Course offered by:

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| Name of faculty offering the course | <i>Faculty of Agriculture and Economics</i> |
| Name of department offering the course | <i>Department of Plant Breeding, Physiology, and Seed Science/ Department of Crop Production</i> |
| Course coordinator | <i>Dr hab. inż. Renata Bączek-Kwinta, prof. URK Dr hab. inż. Agnieszka Klimek-Kopyra, prof. URK</i> |

Learning outcomes:

| Symbol of outcome | Description of the learning outcome | Reference to main field of study outcomes | Area symbol |
|--|---|---|-------------|
| KNOWLEDGE – student knows and understands: | | | |
| | the relationship between plant habitat and human activity | RO1_W07 | R |
| HERPL_K01 | principles of herbal plants production | RO1_W07 RO1_W13 | R |
| HERPL_K02 | basics of pharmacognosy | RO1_W10 AB1_W01 AB1_W04 | R, P |
| HERPL_K03 | the classification of phytochemicals of therapeutical use, their occurrence in plants and side effects to human and animals | RO1_W01 RO1_W02 AB1_W04 | P, R |
| HERPL_K04 | raw materials of herbs of different geographic origin, belonging to different taxa, and their household preparation and use | RO1_W01 RO1_W13 AB1_W04 | R, P |
| SKILLS – student is able to: | | | |
| HERPL_SK01 | schedule the small-scale herbal plants cultivation | RO1_U18 RO1_U20 | R |
| HERPL_SK02 | recognize basic herbs in nature and their products | RO1_U07 RO1_U08 | R, P |
| HERPL_S03 | Choose herbs and herbal products for the treatment of minor health issues | RO1_U18 RO1_U25 AB1_U11 | P, R |
| SOCIAL COMPETENCIES – student is ready to: | | | |
| HERPL_SC01 | Use herbs and herbal products in self-healing in the case of minor health issues | RO1_K08, RO1_K07 AB1_K02 | P, R |
| HERPL_SC02 | Predict and avoid side effects of herbal treatments | RO1_K07 | P, R |

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| | | RO1_K01 AB1_K03 | |
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Teaching contents

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| Lectures | | 20 hours |
| Topics | <ol style="list-style-type: none"> 1. Principles of herbs cultivation 2. Sustainable approach for herbs and spices crop protection 3. History of phytomedicine and different phytomedicine systems in the world 4. Morphology, systematics and chemotaxonomy of medicinal plants 5-6. Plant primary compounds, carbohydrates and lipids: biosynthesis and therapeutical use 7. Plants producing flavonoids and lignans, practical use of the compounds – examples, contraindications 8. Plants producing phenols, coumarins, and tannins, practical use of the compounds – examples, contraindications 9. Plants producing isoprenoids, steroids and essential oils, practical use of the compounds – examples, contraindications 10. Plants producing alkaloids and cannabinoids, practical use of the compounds – examples, contraindications | |
| Accomplished learning outcomes | | |
| Means of verification, rules and criteria of assessment | | <i>Exam; the grade is 67% of contribution in the final grade. Written test, mixed version.</i> |
| Classes | | 20 hours |
| Topics | <ol style="list-style-type: none"> 1-2. Diagnostics and assessment of herbs and spices in natural habitats 3-5. Analysis of the morphological and anatomical features of the raw material of herbs and herbal spices belonging to different taxa (Alliaceae, Apiaceae, Asphodelaceae, Asteraceae, Caesalpiniaceae, Fabaceae, Hypericaceae, Lamiaceae, Papaveraceae, Piperaceae, Rubiaceae, Rhamnaceae, Rutaceae, Solanaceae, Zingiberaceae, Ginkgoaceae, Pinnaceae). Examples of the use in self-healing, analysis of side-effects and contraindications based on the literature reports 6. Analysis of antioxidant activity of raw material and/or herbal plant products 7-8. Sulfoxides and glucosinolates – occurrence in food and herbs, analysis of side-effects and contraindications based on the literature reports 9-10. The use of herbal plants and products in the students' geographical origin | |
| Accomplished learning outcomes | | |
| Means of verification, rules and criteria of assessment | | <i>Classes grade is 33% of the contribution in the final grade. 1. Classes reports, students' presentations (topics 9-10). 2. Grades for accomplished tasks completed individually or as a teamwork.</i> |

References:

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| Basic | Lecture notes, classes handouts Bruneton J., Pharmacognosy, phytochemistry, medicinal plants, 2nd ed., Springer Verlag 2008. Peter K.V. (Ed.) Handbook of herbs and spices, Second Edition, Woodhead Publishing 2012. |
| Supplementary | Heinrich M. et al. Fundamentals of pharmacognosy and phytoterapy, 2nd ed., Elsevier 2012. Lenda M, Skórka P, Kuszewska K, Moroń D, Belcik M, Bączek-Kwinta R, et al. Misinformation, internet honey trading and beekeepers drive a plant invasion. Ecol Lett. doi: https://doi.org/10.1111/ele.13645 , 2021. |

Structure of learning outcomes

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

Structure of student activity

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| Contact hours | 43 | hrs. | 1.7 | ECTS** |
| Including: | | | | |
| lectures | 20 | hrs. | | |
| classes and seminars | 20 | hrs. | | |
| consultations | 2 | hrs. | | |
| participation in research | | hrs. | | |
| mandatory traineeships | | hrs. | | |
| participation in examination | 1 | hrs. | | |
| e-learning | | | | |
| student own work | 58 | hrs. | 2.3 | ECTS** |