

## Topics for foreign candidates

### Discipline: forestry (6)

1.

Department of Forest Resources Management - Faculty of Forestry

Head of the Department: prof. dr hab. inż. Jarosław Socha

Topic: Modeling the effect of environmental factors on the occurrence of mistletoe in pine and fir stands based on multi-source remote sensing data

2.

Department of Forest Resources Management - Faculty of Forestry

Head of the Department: prof. dr hab. inż. Jarosław Socha

Topic: Spatial interactions among trees and mechanisms shaping structural variability and species mingling patterns in temperate natural forests

3.

Department of Forest Resources Management - Faculty of Forestry

Head of the Department: prof. dr hab. inż. Jarosław Socha

Topic: Developing a remote sensing method to assess habitat suitability for planned large-scale afforestation in northern Mongolia

4.

Department of Ecological Engineering and Forest Hydrology – Faculty of Forestry

Head of the Department prof. dr hab. inż. Marcin Pietrzykowski

Topic: Assessment of forest ecosystem service in a highly industrialized region (Upper Silesia) through developing socioeconomic and ecological indicators

5.

Department of Forest Biodiversity - Faculty of Forestry

Head of the Department: prof. dr hab. inż. Jerzy Szwagrzyk

Topic: Small-scale responses of animals to spatial patterns of coarse woody debris and forest structure and their consequences for ecosystem functioning

6.

Department of Forest Ecosystem Protection – Faculty of Forestry

Head of the Department: dr hab. inż. Robert Jankowiak, prof. URK

Topic: Influence of the production technology of beech, oak, and pine seedlings on their biochemical and physiological parameters and resistance to drought stress

### Discipline: agriculture and horticulture (4)

1.

Department of Plant Breeding, Physiology and Seed Sciences – Faculty of Agriculture and Economics

Head of the Department: prof. dr hab. inż. Marcin Rapacz

Topic: Genetic and molecular basis of male fertility restoration in wheat (*Triticum aestivum* L.) with *Triticum timopheevi* cytoplasm

2.

Department of Plant Breeding, Physiology and Seed Sciences – Faculty of Agriculture and Economics  
Head of the Department: prof. dr hab. inż. Marcin Rapacz

Topic: Biological and environmental determinants of the responses of the seed of crop plants and accompanying invasive plants to physiologically active smoke compounds

3.

Department of Agroecology and Crop Production - Faculty of Agriculture and Economics

Head of the Department: dr hab. inż. Andrzej Oleksy, prof. URK

Topic: Agroecological strategies employed in pests regulation in crop rotation depending on pesticide use

4.

Department of Soil Science and Agrophysics – Faculty of Agriculture and Economics

Head of the Department: dr hab. inż. Tomasz Zaleski, prof. URK

Topic: Natural and anthropogenic factors of soil erosion of the Mongolian Plateau

#### **Discipline: nutrition and food technology (4)**

1.

Department of Animal Product Technology – Faculty of Food Technology

Head of the Department: prof. dr hab. inż. Jacek Domagała

Topic: Using various forms of hyaluronic acid in meat processing

2.

Department of Fermentation Technology and Technical Microbiology – Faculty of Food Technology

Head of the Department: prof. dr hab. inż. Paweł Satora

Topic: Physicochemical and functional properties of protein from plant seeds used as aftercrop

3.

Department of Human Nutrition and Dietetics – Faculty of Food Technology

Head of the Department: prof. dr hab. inż. Teresa Leszczyńska

Topic: Diet components - the interaction between gut microbiota and endothelial function

4.

Department of Engineering and Machinery in Food Industry – Faculty of Food Technology

Head of the Department: dr hab. inż. Anna Ptaszek, prof. URK

Topic: Selection of thermal treatment in the context of health-promoting properties in selected vegetables

#### **Discipline: animal science and fisheries (1)**

1.

Department of Animal Reproduction, Anatomy and Genomics – Faculty of Animal Science

Head of the Department: prof. dr hab. Monika Bugno-Poniewierska

Topic: Physiological and genomic analysis of alpaca (*Vicugna pacos*) gametes in the context of suitability for assisted reproduction techniques

**Discipline: environmental engineering, mining and energy (1)**

1.

Department of Soil Science and Agrophysics – Faculty of Agriculture and Economics

Head of the Department :dr hab. inż. Tomasz Zaleski, prof. URK

Topic: Heterogeneity of the gypsum soils parent material as a factor affecting their morphology, properties, and resistance to degradation

**European horticulture program (Eurohort)**

**Discipline: agriculture and horticulture (2)**

1.

Department of Plant Biology and Biotechnology – Faculty of Biotechnology and Horticulture

Head of the Department: prof. dr hab. inż. Rafał Barański

Topic: Somatic hybridization for broadening the biodiversity in brassica vegetables

2.

Department of Plant Biology and Biotechnology – Faculty of Biotechnology and Horticulture

Head of the Department: prof. dr hab. inż. Rafał Barański

Topic: Induction of Allium protoplast development in in vitro cultures