The Topics for Doctoral Study Programme in the Academic Year 2017/2018

Department-topic Supervisor

Foreign applicants have to contact proper supervisor before submitting the application

General Crop Science

**Department of Agroecology and Biometeorology - full time study**

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| Optimization of liquid organic fertilisers distribution in soil during their application | doc. Brantbrant@af.czu.cz |
| Optimization of technology with herbicide tolerant sugar beet varieries CONVISO® SMART system for the conditions of Czech Republic | doc. Jursíkjursik@af.czu.cz |
| Modelling climate change impacts on the thermophilic vegetables | doc. Pišoftpisoft@af.czu.cz |
| Study of risk associated with introduction of herbicide tolerant sugar beet varieties CONVISO® SMART system | prof. Soukupsoukup@af.czu.cz |
| Prevalence and mechanisms of resistance to PSII inhibiting herbicides in Chenopodium album, Amaranthus retroflexus a Solanum nigrum in the Czech Republic | prof. Soukupsoukup@af.czu.cz |
| Mechanisms of multiple herbicide resistance in grassweeds of cereals | prof. Soukupsoukup@af.czu.cz |

**Department of Agroenvironmental Chemistry and Plant Nutrition - full time study**

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| Development of additional criteria to the evaluation of soil sulfur content in agrochemical soil testing | prof. Balíkbalik@af.czu.cz |
| Development of additional criteria to the evaluation of selected soil micronutrients content in agrochemical soil testing | prof. Balíkbalik@af.czu.cz |
| Specification of the criteria for the evaluating of soil phosphorus pool focused on calcareous soils | prof. Balíkbalik@af.czu.cz |
| The importance of amino acids for the detoxification of risk elements in plant | prof. Pavlíkovápavlikova@af.czu.cz |
| The changes in the composition and content of fatty acids as a plant stress response | prof. Pavlíkovápavlikova@af.czu.cz |

Department of Botany and Plant Physiology - full time study

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| Effects of gibberellic acid (GA3) on the growth and induction of flowering in wheat plants (*Triticum aestivum* L.) at different photoperiod | doc. Hejnákhejnak@af.czu.cz |
| Definition of physiological, metabolic and adaptation processes in the fern Pteris cretica L. growing on contaminated soils by arsenic | doc. Hniličkahnilicka@af.czu.cz |
| The physiological reaction of maize (*Zea mays* L.) under water stress and salinity | doc. Hniličkahnilicka@af.czu.cz |

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Special Crop Science

**Department of Genetics and Breeding - full time study**

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| Using of genetic markers to identify of sweet cherries (Prunus avium L.) and sour cherries (Prunus cerasus L.) varieties | doc. Vejlvejl@af.czu.cz |
| Development of new genetics markers suitable for the identification of poppy varieties (Papaver somniferum L.) | doc. Vejlvejl@af.czu.cz |

**Department of Forage Crops and Grassland Management - full time or study**

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| Influence of grassland management on their development and non-productive functions | doc. Haklhakl@af.czu.cz |
| Development of selected turf grass species under stress conditions | prof. Svobodovásvobodova@af.czu.cz |
| Forage characteristics and utilization of Czech lucerne candivars | prof. Šantrůčeksantrucek@af.czu.cz |

**Department of Crop Production - full time study**

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| Use of the innovative features of intensifying character in selected crops under organic farming system | prof. Capouchovácapouchova@af.czu.cz |
| Cultivation and utilization of medicinal plants | prof. Hamouzhamouz@af.czu.cz |
| Increasing potato production potential in drought conditions and weather fluctuation | prof. Hamouzhamouz@af.czu.cz |

**Department of Landscape Architecture - full time study**

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| Alleys - part of our landscape | doc. Jebavýjebavy@af.czu.cz |
| Country settlement and prospective development of the land use in the region of South-West Bohemia | doc. Vaněkvanekj@af.czu.cz |
| Extinct gardens and landscape architecture units in Central Bohemia | doc. Vaněkvanekj@af.czu.cz |
| Vegetation cover in landscape as an evidence of former settlements if the locations of Bohemia, where the transfer of inhabitants in the ½ 20.century was done. | doc. Vaněkvanekj@af.czu.cz |
| The traditional avenue trees and their outstanding ecotypes | doc. Vaněkvanekj@af.czu.cz |
| Country road. Mythic places and vegetative accompaniment | doc. Vaněkvanekj@af.czu.cz |

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**General Animal Science**

**Department of Genetics and Breeding - full time study**

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| Estimation of genetic parameters for the leg disorders in dairy cattle and prediction of breeding values for this trait | doc. Vostrývostry@af.czu.cz |
| Non-linear dependences between traits of dairy cattle, calculation of genetic parameters and more precise construction of selection indexes | prof. Přibylpribyl@af.czu.cz |
| Optimization of selection schemes in sheep | prof. Přibylpribyl@af.czu.cz |
| Optimization of selection schemes in beef cattle | prof. Přibylpribyl@af.czu.cz |
| Optimization of selection schemes in dairy cattle exploiting genomic information | prof. Přibylpribyl@af.czu.cz |
| Algorithms of genomic evaluation of farm animals exploring all available sources of information about animals and genotypes | prof. Přibylpribyl@af.czu.cz |
| Crossbreed effects in genetic evaluation of farm animals | prof. Přibylpribyl@af.czu.cz |

**Department of Veterinary Sciences - full time study**

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| Influencing polyspermy rate during IVF through modulation of the ubiquitin-proteasome system function | doc. Chmelíkováchmelikova@af.czu.cz |
| Involvement of ubiquitin-proteasome system into the control of mammalian sperm capacitation molecular mechanisms | prof. Sedmíkovásedmikova@af.czu.cz |
| Horse grass sickness occurence and prevention possibilities in the Czech Republic | doc. Rajmomrajmon@af.czu.cz |

**Department of Zoology and Fisheries - full time study**

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| Bionomy of the selected species of frit flies (Diptera, Chloropidae) and their rearing in laboratory conditions | prof. Bartákbartak@af.czu.cz |
| The effect of a captivity on the infection of Sunda slow loris (Nycticebus coucang) by parasites | doc. Jankovskájankovska@af.czu.cz |
| Host-parasite relationships of freshwater mussels and fish – the importance for species dispersal and larval development | doc. Kalouskalous@af.czu.cz |
| The spread and impact of non-native fish species, focusing on Ponto - Caspian region.) | doc. Kalouskalous@af.czu.cz |
| The impact of gastrointestinal helminths on the arsen, beryllium and other risk element toxicodynamics in small terrestrial mammals living in the contaminated area | prof. Langroválangrova@af.czu.cz |
| Taxonomic revision of coccidia in dogs and foxes | prof. Langroválangrova@af.czu.cz |
| Physiological functions of GCPII orthologs in helminths | prof. Langroválangrova@af.czu.cz |
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| Instrumental insemination of queen bees as a tool for the implementation of breeding intentions with regard to the possible transfer of bacterial and viral infections of semen | prof. Langroválangrova@af.czu.cz |
| Instrumental insemination as a tool used by searching potential genes of disease tolerance by honey bees | prof. Langroválangrova@af.czu.cz |
| The effect of site familiarity on fitness of fishes | doc. Slavíkoslavik@af.czu.cz |
| Diagnostics, pathology and epidemiology of ashworthiosis | doc. Vadlejchvadlejch@af.czu.cz |

**SPECIAL ANIMAL SCIENCE**

**Department of Animal Husbandry - full time study**

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| Effect of inovative technology approaches used in insemination doses production on dairy cows´ pregnancy results | doc. Stádníkstadnik@af.czu.cz |
| Relationships between selected gens polymorphism and potential fertility of dairy cows and bulls | doc. Stádníkstadnik@af.czu.cz |
| Creating a model to estimate the economic losses upon the incidence of mastitis in dairy cows in the Czech Republic | doc. Stádníkstadnik@af.czu.cz |
| Creating a model to estimate the economic losses upon the incidence of lameness in dairy cows in the Czech Republic | doc. Stádníkstadnik@af.czu.cz |
| Evaluation of relationships between the time and quality of the rest of dairy cows and their performance and health | doc. Stádníkstadnik@af.czu.cz |
| Evaluation of the relationship between the time of chewing and feed intake and the incidence of disease in dairy cows | doc. Stádníkstadnik@af.czu.cz |
| Influence of selected genetic markers on pork carcass fat content | doc. Stupkastupka@af.czu.cz |
| The effect of selected genes on level of androstenone in adipose and muscle tissue of boars | doc. Stupkastupka@af.czu.cz |
| A study of carcass composition and meat quality depending on genotype and sex of turkey during fattening | prof. Tůmovátumova@af.czu.cz |
| The performance and quality of meat in relation to housing system of rabbits in intensive breeding conditions | doc. Zitazita@af.czu.cz |

**AGRICULTURAL AND FORESTRY PHYTOPATOLOGY AND PLANT PROTECTION**

**Department of Plant Protection - full time study**

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| Support of incidence of natural enemies of plant pests and arthropod biodiversity in orchards | prof. Kocourekkocourek@af.czu.cz |
| Protection of strawberries against Phytophthora cactorum | prof. Ryšánekrysanek@af.czu.cz |
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| Methods of vegetable protection against Meloidogyne hapla | prof. Ryšánekrysanek@af.czu.cz |
| Methods of vegetable protection against important soilborne pathogens | prof. Ryšánekrysanek@af.czu.cz |
| Methods of plant protection against Bursaphelenchus xylophilus | prof. Ryšánekrysanek@af.czu.cz |
| Synantropic rodents – risks of monitoring and contamination in agriculture and food industry | prof. Ryšánekrysanek@af.czu.cz |
| Technology of controlled atmospheres and evaluation of their effects on storage pests | prof. Ryšánekrysanek@af.czu.cz |
| Fumigants and their effectivity on storage pests | prof. Ryšánekrysanek@af.czu.cz |
| Protective function of food packaging against storage pests | prof. Ryšánekrysanek@af.czu.cz |

**AGRICULTURAL CHEMISTRY**

**Department of Chemistry - full time study**

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| The influence of genetic variability on the representation and the contents of individual casein fractions in milk of small ruminants | doc. Hejtmánkováhejtmankova@af.czu.cz |
| The representation and the contents of individual whey proteins in the milk of small ruminants | doc. Hejtmánkováhejtmankova@af.czu.cz |
| Lignans and other non-traditional antioxidants in cereals with colored caryopsis | prof. Lachmanlachman@af.czu.cz |

**Department of Quality of Agricultural Products - full time study**

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| Use of modern analytical techniques for prediction of honeybee colony health status | doc. Kloučekkloucek@af.czu.cz |
| Processing and quality control of medicinal cannabis | doc. Kloučekkloucek@af.czu.cz |
| Plant-derived compounds as an alternative to conventional anti-biofilm preparations | doc. Kloučekkloucek@af.czu.cz |
| Effect of cereal dietary fibre and its fractions on quality of cereal products | doc. Kloučekkloucek@af.czu.cz |

**Department of Microbiology, Nutrition and Dietetics - full time**

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| The effect of microwave treatment on the quality of food | doc. Kouřimskákourimska@af.czu.cz |

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**EXPLOITATION AND CONSERVATION OF NATURAL RESOURCES**

**Department of Agroenvironmental Chemistry and Plant Nutrition - full time study**

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| Methods for evaluation of compost and vermicompost quality | doc. Hančhanc@af.czu.cz |
| The possible uptake, pathways and transformations of arsenic, beryllium and other toxic elements in the small terrestrial mammals in the contaminated area | prof. Szákovászakova@af.czu.cz |
| The Control of Nitrification Process in Water Environment at Extremely High Concentration of Ammonia and other Substances | prof. Tlustoštlustos@af.czu.cz |
| Regulation of Nutrients and Toxic Elements Release from Ashes Produced by Biomass Inceneration  | prof. Tlustoštlustos@af.czu.cz |

**Department of Soil Science and Soil Protection - full time study**

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| Spatial prediction of soil properties using digital soil mapping approaches | prof. Borůvkaboruvka@af.czu.cz |
| Spatial prediction of potentially toxic element contents in soil using digital soil mapping approaches | prof. Borůvkaboruvka@af.czu.cz |
| Spatial prediction of soil classes at different scale using digital soil mapping approaches | prof. Borůvkaboruvka@af.czu.cz |
| Temporal changes of forest mountainous soils acidification | doc. Drábekdrabek@af.czu.cz |
| Experimental and mathematical modelling of root uptake of pharmaceuticals dissolved in soil water | prof. Kodešovákodesova@af.czu.cz |
| Novel insight into solid thallium speciation using thermal desorption | doc. Vaněkvaneka @af.czu.cz |