University of Hradec Králové
Faculty of Science

COURSE CATALOGUE

University of Hradec Králové
Faculty of Science

The Faculty of Science UHK (FoS UHK) was established in 2010. FoS UHK has over 600 students of biology, chemistry, informatics, mathematics, physics, toxicology and science teaching. The faculty is growing now more than ever, residing in the new modern university campus.

FoS UHK is the youngest faculty of the University of Hradec Králové which consists of **4 departments**:

- Department of Biology
- Department of Chemistry
- Department of Mathematics
- Department of Physics

We offer studies at all levels: Bachelor, Master and Ph.D.

INTERNATIONAL STUDENTS

International students can choose their courses taught in English from this Course catalogue as well as from other faculties of UHK, but there should be an overwhelming majority of courses from the Faculty of Science (at least 75 %). When seeking for scholarship students can make use of various international programs including our vast range of Eramus+ partners and other cooperations.

MODERN FACILITIES

Faculty resides in modern campus that includes laboratories, library, buffets, locker rooms and student lounges. The campus is situated within walking distance of the city centre and other university buildings.

Modern university in the heart of Europe

ACCOMMODATION

All international students are provided with accommodation at the university dormitory. The accommodation costs approx. €120/month.

ABOUT THE UNIVERSITY OF HRADEC KRÁLOVÉ

The University of Hradec Králové is a public university (est. 1959) and provides high-quality education to almost 7,000 students. The UHK consists of 4 faculties: Faculty of Education, Faculty of Informatics and Management, Philosophical faculty and Faculty of Science. There are several student organizations functioning at the UHK, including ESN Buddy System.

THE CITY OF HRADEC KRÁLOVÉ

Hradec Králové is located 100 km east from capital city, Prague. This city of 100,000 inhabitants is famous for its many parks and greenery as well as its historical and urban centre, social life and remarkable scenery at the confluence of Labe and Orlice rivers.

CONTACTS

For further information contact our International Office.
Please note that the course offer may change.

International Office

Mgr. Pavla Holubová
pavla.holubova@uhk.cz
+ 420 493332817

Bachelor programs

BIOLOGY

Course title	Abbreviation*	Type**	Semester	ECTS credits
Anatomy and Morphology of Animals	KBI/BAMZI	L	W	3
Basic Ethology	KBI/BZAET	L	W	3
Basic Toxicology and Ecotoxicology	KBI/BZTOE	L+LP	W	4
Basics of Cell Biology	KBI/BZABB	L+LP	W	5
Evolutionary Biology	KBI/BEVBI	L	W	3
Basics of Geology	KBI/BZAGE	L+P	W	4
General Ecology	KBI/BOBEK	L+P	W	4
Human Anatomy	KBI/BANCL	L+P	W	4
Microbiology	KBI/BMIBI	L+LP	W	4
Molecular Biology	KBI/BMOBI	L	W	3
Phylogeny and System of Non-vasculars	KBI/BFSSO	L+P	W	5
Phylogeny and System of Vascular Plants	KBI/BFSVR	L+P	W	5
Phylogeny and System of Chordates	KBI/BFSST	L+P	W	5
Plant Physiology	KBI/BFYRO	L+P	W	5
Principles of Terraristics	KBI/BZTER	S	W	3
Animal Ecology	KBI/BEKZI	L+P	S	4
Comparative Animal Physiology	KBI/BSRFZ	L+P	S	5
Genetics	KBI/BGENE	L+P	S	4
Botanical Outdoor Exercises***	KBI/BBOTC	P	S	3
Geological Outdoor Exercises***	KBI/BGETC	P	S	2
Zoological Outdoor Exercises***	KBI/BZCVT	P	S	3
Phylogeny and System of Invertebrates	KBI/BFSBE	L+P	S	5
Plant Anatomy and Morphology	KBI/BAMRO	L+P	S	5
Plant Ecology	KBI/BEKRO	L+P	S	5
Nature protection and Landscape Conservation I	KBI/BOPK1	S	S	3

* more information can be found on:
https://stag.uhk.cz/portal/studium/prohlizeni.html?pc_lang=en

** Lecture (L), Seminar (S), Practice (P), Laboratory Practice (LP)

*** These field practices require a certain level of physical fitness, as well as appropriate outdoor equipment

CHEMISTRY

Course title	Abbreviation*	Type**	Semester	ECTS credits
Analytical Chemistry 1	KCH/3ANA1	L+S	W	4
Bachelor Thesis 1 in Chemistry	KCH/3BAP1	LP	W	5
Chemical software and databases	KMA/3CSDA	P	W	3
General and Inorganic Chemistry 1	KCH/3OAN1	L+S	W	4
Fundamentals in Medicinal Chemistry	KCH/3FACH	L	W	6
Fundamentals in Molecular Modelling	KCH/3MOMO	L	W	4
Fundamentals in Toxicology and Pharmacology	KCH/3TOFA	L	W	5
History of Chemistry	KCH/3HICH	L	W	2
Laboratory Practice in Analytical Chemistry 1	KCH/3LAN1	LP	W	2
Laboratory Practice in Instrumental Methods	KCH/3LINS	LP	W	3
Laboratory Practice in Organic Chemistry 2	KCH/3LOR2	LP	W	2
Laboratory Practice in Physical Chemistry	KCH/3LFCH	LP	W	2
Laboratory Technique	KCH/3LABT	LP	W	3
Methods for Structural Study of Organic Compounds	KCH/3MSOS	S	W	3
Organic Chemistry 2	KCH/3ORG2	L+S	W	7
Physical Chemistry	KCH/3FYCH	L+S	W	6
Practice in Fundamentals of Molecular Modelling	KCH/3CMOM	P	W	3
Toxicology and Analysis of Food	KCH/3TOAP	L	W	2
Toxicology of Plant and Animal Toxins	KCH/3TRZJ	L	W	5
Analytical Chemistry 2	KCH/3ANA2	L+S	S	7
Bachelor Thesis 2 in Chemistry	KCH/3BAP2	LP	S	10

Biochemistry	KCH/3BICH	L	S	6
Bioorganic Chemistry	KCH/3BIOR	L	S	6
Chemical and Biological Terrorism	KCH/3CHBT	L	S	2
General and Inorganic Chemistry 2	KCH/3OAN2	L	S	6
Laboratory Practice in Analytical Chemistry 2	KCH/3LAN2	LP	S	2
Laboratory Practice in Biochemistry	KCH/3LBCH	LP	S	2
Laboratory Practice in Bioorganic Chemistry	KMA/3LBIO	LP	S	2
Laboratory Practice in Inorganic Chemistry	KCH/3LANC	LP	S	2
Laboratory Practice in Organic Chemistry 1	KCH/3LOR1	LP	S	2
Organic Chemistry 1	KCH/3ORG1	L+S	S	4
Reaction Mechanisms in Organic Chemistry	KCH/3REME	L+S	S	5
Toxicology of Inorganic and Organic Compounds	KCH/3TAOS	L	S	5

* more information can be found on:
https://stag.uhk.cz/portal/studium/prohlizeni.html?pc_lang=en

** Lecture (L), Seminar (S), Practice (P), Laboratory Practice (LP)

MATHEMATICS

Course title	Abbreviation*	Type**	Semester	ECTS credits
Algebra 1	KMA/BALG1	L+S	W	6
Geometry 1	KMA/BGEO1	L+S	W	4
Geometry 3	KMA/BGEO3	L+S	W	3
Introduction to Mathematics	KMA/BUSTM	S	W	2
Introduction to Topology	KMA/BZTOP	L+S	W	2
Mathematical Analysis 1	KMA/BANL1	L+S	W	5
Mathematical Analysis 3	KMA/BANL3	L+S	W	3
Mathematical Software	KMA/BMASW	S	W	1
Difference Equations	KMA/BDIFR	L	W	2
Algebra 2	KMA/BALG2	L+S	S	5

Algebra 3	KMA/BALG3	L+S	S	4
Discrete Mathematics	KMA/BZAKO	L+S	S	2
Chapters on Probability and Statistics	KMA/BKKPS	S	S	2
Geometry 2	KMA/BGEO2	L+S	S	4
Geometry 4	KMA/BGEO4	L+S	S	3
Introduction to Didactics of Mathematics	KMA/BUDIM	S	S	4
Mathematical Analysis 2	KMA/BANL2	L+S	S	4

* more information can be found on:
https://stag.uhk.cz/portal/studium/prohlizeni.html?pc_lang=en

** Lecture (L), Seminar (S), Practice (P), Laboratory Practice (LP)

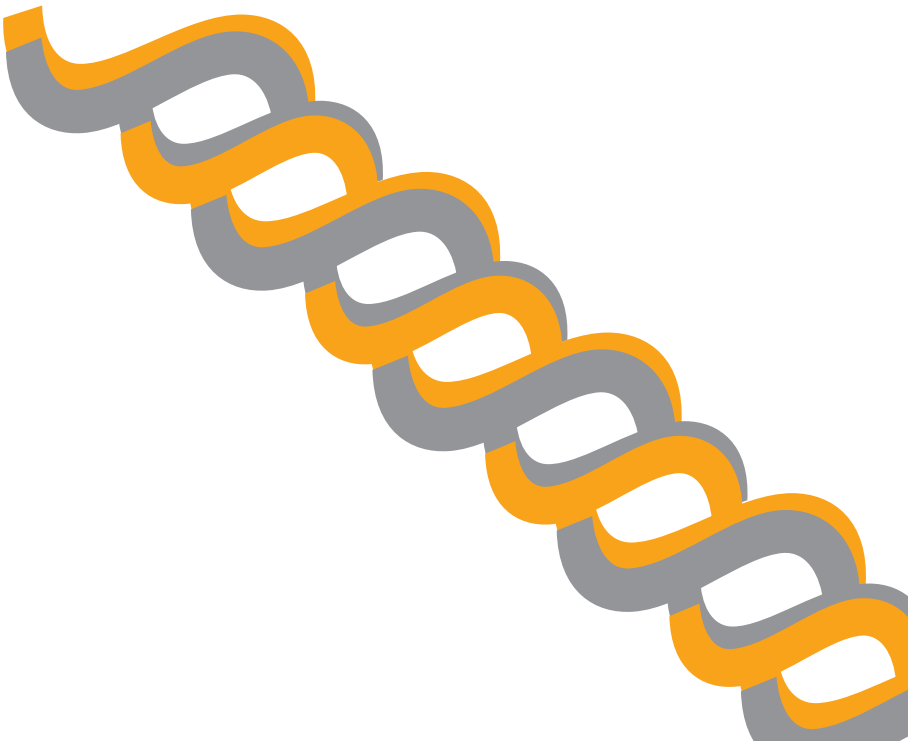
PHYSICS

Course title	Abbreviation*	Type**	Semester	ECTS credits
Automation and Measurement	KFY/3FAM	L+S	W	3
Biomedical Imaging Systems 1	KFY/3FBZS	L	W	2
Experiments in Modern Physics	KFY/3FEMF	L	W	3
Measurement of Physical Quantities	KFY/3FMFZ	S	W	3
Environmental and Health Monitoring Systems	KFY/3FMSO	L+S	W	3
Physical Laboratory Practice 2	KFY/3FPR2	LP	W	4
Theoretical Mechanics 1	KFY/3FTM1	L+S	W	4
Fundamentals of Electronics	KFY/3FZEL	L+S	W	5
Physics - Particles and Fields	KFY/3FZFC	L+S	W	4
Physics - Mechanics	KFY/3FZFM	L+S	W	5
Physics - Electricity 2	KFY/3FZF2	L+S	W	5
Basics of Measuring Instruments	KFY/3FZMP	S	W	2
Biophysics	KFY/3FBIO	L+S	S	3
Physical Biomonitoring, Rad. Protection	KFY/3FBRO	L+S	S	3
Biomedical Imaging Systems 2	KFY/3FBZ2	L	S	2
Modeling and Simulation	KFY/3FMOS	L	S	4

Electronics Laboratory Practice	KFY/3FPE	LP	S	3
Physical Laboratory Practice 1	KFY/3FPR1	LP	S	3
Physical Laboratory Practice 3	KFY/3FPR3	LP	S	4
Theoretical Mechanics 2	KFY/3FTM2	L+S	S	3
Physics - Oscillations and Waves	KFY/3FZFK	L+S	S	4
Physics - Thermal	KFY/3FZFT	L+S	S	4
Physics - Electricity 1	KFY/3FZF1	L+S	S	3

* more information can be found on:
https://stag.uhk.cz/portal/studium/prohlizeni.html?pc_lang=en

** Lecture (L), Seminar (S), Practice (P), Laboratory Practice (LP)



Master programs

BIOLOGY

Course title	Abbreviation*	Type**	Semester	ECTS credits
Biomonitoring	KBI/NBIOM	L	W	4
Bryology and Lichenology	KBI/NBRLI	S	W	3
Developmental Biology	KBI/NDEBI	S	W	3
Entomology	KBI/NENTO	L+P	W	6
Mammaliology[1]	KBI/NMAMA	L	W	3
Ornithology[2]	KBI/NORNI	L	W	3
Parasitology	KBI/NPARA	L	W	3
Special Botanical Field Practice***	KBI/NSBTC	P	W	3
Aquatic and Wetland Plants***	KBI/NVMRO	P	W	4
Nature protection and Landscape Conservation II	KBI/NOPK2	L+P	W	5
Plant Ecophysiology	KBI/NEKFR	L+P	W	6
Methods of Molecular Biology	KBI/NMEMB	P	S	3
Ethology	KBI/NETOL	S	S	3
Forest Ecology	KBI/NEKLE	L+P	S	4
Genetically Modified Organisms	KBI/NGEMO	S	S	4
Natural Toxins	KBI/NPRTO	L	S	3
Animal Morphology Practice	KBI/NCVMZ	P	S	3
Restoration Ecology	KBI/NEKOB	L	S	5
Zoological Methodology***	KBI/NMEZP	P	S	3

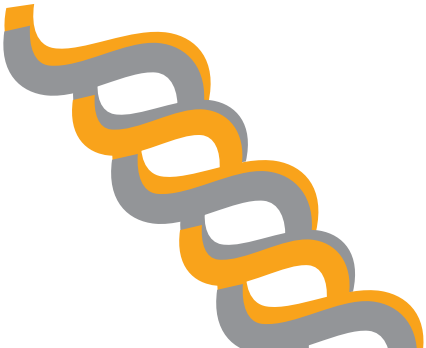
* more information can be found on:
https://stag.uhk.cz/portal/studium/prohlizeni.html?pc_lang=en

** Lecture (L), Seminar (S), Practice (P), Laboratory Practice (LP)

*** These field practices require a certain level of physical fitness, as well as appropriate outdoor equipment

[1] Taught only in odd-numbered school year

[2] Taught only in even-numbered school year



CHEMISTRY

Course title	Abbreviation*	Type**	Semester	ECTS credits
Advanced Inorganic and Bioinorganic Chemistry	KCH/2PANC	L	W	4
Advanced Medicinal Chemistry	KCH/2PFAC	L	W	5
Advanced Molecular Modelling	KCH/2PMOM	L	W	4
Advanced Organic Chemistry	KCH/2PORG	L+S	W	5
Applied Toxicology and Ecotoxicology	KCH/2APTE	L	W	5
Biochemical and Molecular Biology Methods	KCH/2BMBM	L	W	6
Bioinformatics and cheminformatics	KCH/2CHBI	L	W	6
Chromatographic Methods	KCH/2CHRM	L	W	6
Diploma Thesis 1 in Chemistry	KCH/2DIP1	LP	W	10
Diploma Thesis 3 in Chemistry	KCH/2DIP3	LP	3	10
Heterocyclic Chemistry	KCH/2CHHE	L	3	2
Laboratory Practice in Advanced Biochemical Methods	KCH/2LBCH	LP	3	2
Laboratory Practice in Advanced Molecular Modelling	KCH/2CMOM	P	3	2
Laboratory Practice in Advanced Organic Chemistry	KCH/2LORG	LP	3	2
Laboratory Practice in Biochemical and Molecular Biology Methods	KCH/2LBCH	LP	3	2
Laboratory Practice in NMR	KCH/2LNMR	LP	3	2
Laboratory Practice in Sampling and Sample Preparation	KCH/2LOPV	LP	3	2
Molecular and Atomic Spectrometry	KCH/2MASP	L	3	6
Pathophysiology and Pathobiochemistry	KCH/2PAFB	L	3	3
Toxicology of Nanoparticles	KCH/2TONA	L	W	3
Advanced Bioorganic Chemistry	KCH/2PBIO	L	S	6
Diploma Thesis 2 in Chemistry	KCH/2DIP2	LP	S	10
Diploma Thesis 4 in Chemistry	KCH/2DIP4	LP	S	10

Ecotoxicological Bioassays	KCH/2EKOT	LP	S	2
Fundamentals of Biophysical Methods in Biochemistry	KCH/2ZBFM	L	S	2
Laboratory Practice in Advanced Bioorganic Chemistry	KCH/2LBIO	LP	S	2
Laboratory Practice in Spectral and Separation Methods	KCH/2LSSM	LP	S	2
Mass Spectroscopy	KCH/2HMSP	L	S	6
Stereochemistry	KCH/2STER	L	S	4
Toxicology of Natural and Bioactive Compounds	KCH/2TPBS	L	S	5

* more information can be found on:
https://stag.uhk.cz/portal/studium/prohlizeni.html?pc_lang=en

** Lecture (L), Seminar (S), Practice (P), Laboratory Practice (LP)

MATHEMATICS

Course title	Abbreviation*	Type**	Semester	ECTS credits
Applied Statistics	KMA/NASTA	P	W	3
Didactics of Mathematics 1	KMA/NDMA1	L+P	W	2
Financial Mathematics	KMA/NFINM	P	W	2
Graph Theory	KMA/NTEOG	L+P	W	3
History of Mathematics	KMA/NDEJM	L	W	2
Introduction to Algebraic Topology	KMA/NUATO	L	W	2
Introduction to Theory of Differential Equations	KMA/NUTDR	L+P	W	5
Matrix Computations	KMA/NMATA	L	W	2
Differential geometry of curves and surfaces	KMA/NDIGE	L	W	2
Methods of Solving Mathematical Tasks 1	KMA/NMER1	L	W	2
Symplectic geometry	KMA/NSYGE	L	W	2
Applied Statistics	KMA/NASTA	L+S	S	3
Introduction to global analysis	KMA/NGLAN	P	S	2

Introduction to representation theory	KMA/NTERE	L	S	2
Didactics of Mathematics 2	KMA/NDMA2	L+P	S	2
Didactic Software	KMA/NDISW	P	S	2
Introduction to Algebraic Geometry	KMA/NUAGE	P	S	2
Methods of Solving Mathematical Tasks 2	KMA/NMER2	L	S	2
Set Theory	KMA/NTMNO	L	S	2

* more information can be found on:
https://stag.uhk.cz/portal/studium/prohlizeni.html?pc_lang=en

** Lecture (L), Seminar (S), Practice (P), Laboratory Practice (LP)

PHYSICS

Course title	Abbreviation*	Type**	Semester	ECTS credits
Astrophysics and Geophysics	KFY/NASTR	L	W	3
Condensed Matter Physics	KFY/NFPK	L+S	W	5
Fundamental Experiments and Historical Measurements	KFY/NFEHM	L+S	W	3
Theory of Relativity	KFY/NTR	L	W	3
Quantum Physics	KFY/NKF	L+S	S	5
Theory of Electromagnetic Field	KFY/NTEP	L+S	S	4

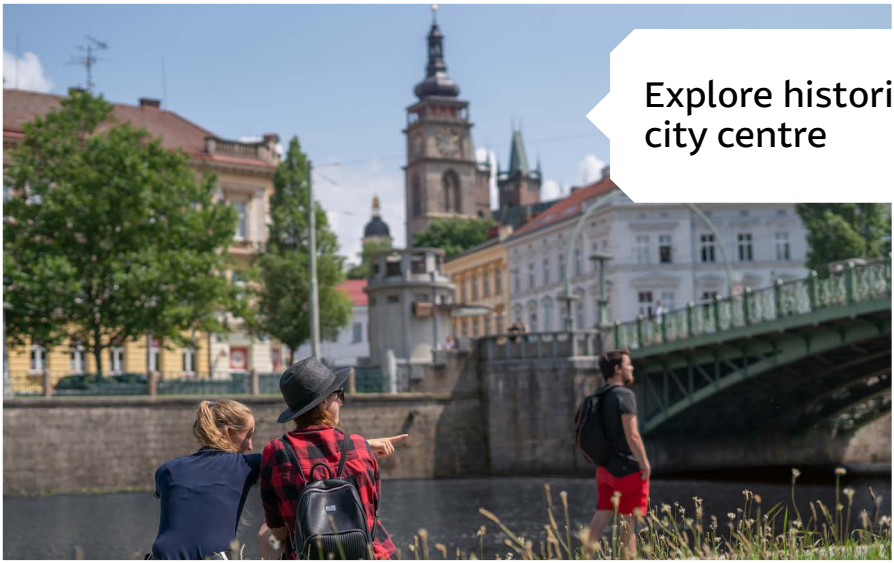
* more information can be found on:
https://stag.uhk.cz/portal/studium/prohlizeni.html?pc_lang=en

** Lecture (L), Seminar (S), Practice (P), Laboratory Practice (LP)


See you soon in
Hradec Králové!

Study in modern building

Learn from leading experts



Explore historical city centre

Relax in beautiful parks

ww.uhk.cz