University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/

Course name: English Language for PhD Students 1

AJD1/07

Course type, scope and the method:

Course type: Practice

Recommended course-load (hours): Per week: 2 Per study period: 28

Course method: present

Number of credits: 2

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment

Total number of assessed students: 525

N	Ne	Р	Pr	abs	neabs
0.0	0.0	58.29	0.0	41.71	0.0

Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD.

Date of last modification: 04.10.2016

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/

Course name: English Language for PhD Students 2

AJD2/07

Course type, scope and the method:

Course type: Practice

Recommended course-load (hours): Per week: 2 Per study period: 28

Course method: present

Number of credits: 3

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment

Total number of assessed students: 528

N	Ne	P	Pr	abs	neabs
0.0	0.0	91.86	1.52	6.63	0.0

Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD.

Date of last modification: 04.10.2016

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ Course name

ASTF/15

Course name: Astrophysics

Course type, scope and the method:

Course type: Lecture

Recommended course-load (hours): Per week: 4 Per study period: 56

Course method: present

Number of credits: 10

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:

Seminar essay.

Oral exam with preparation; 3 questions within the curriculum presented during the course.

Learning outcomes:

Become acquainted with other aspects of the formation of spectra in stellar atmospheres.

Brief outline of the course:

Chemical analysis; measurement of stellar radii and temperatures; measurements of photospheric pressure; stellar rotation; velocity fields in stellar photospheres; microturbulence and macroturbulence; stellar granulation.

Recommended literature:

- 1. Gray, D.F., The observation and analysis of stellar photospheres, Cambridge University Press, Cambridge, 1992;
- 2. Böhm-Vitense, E., Introduction to stellar astrophysics, Stellar atmospheres, Cambridge University Press, Cambridge, 1997;
- 3. Kipenhahn, R., Weigert, A., Stellar Structure and evolution, Springer-Verlag, Berlin, 1990;

Course language:

Slovak, English

Course assessment

Total number of assessed students: 4

N	P
0.0	100.0

Provides: doc. RNDr. Rudolf Gális, PhD.

Date of last modification: 21.02.2017

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/
ASVE/15

Course name: High energy astrophysics

Course type, scope and the method:

Course type: Lecture

Recommended course-load (hours): Per week: 2 Per study period: 28

Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 3.

Course level: III.

Prerequisities:

Conditions for course completion:

Seminar essay.

Oral exam with preparation; 3 questions within the curriculum presented during the course.

Learning outcomes:

Become acquainted with the basics of high energy astrophysics.

Brief outline of the course:

Astrophysical mechanisms of the origin and properties of high energy photons in different types of cosmic objects: solar system bodies, active stellar coronae, supernova explosions and remnants, neutron stars, cataclysmic variable stars and X-ray binaries, active galactic nuclei, clusters of galaxies and gamma-ray bursts. Detection and analysis of X-rays and gamma rays.

Recommended literature:

- 1. Melia, F., High-Energy Astrophysics, Princeton University Press, Princeton, 2009;
- 2. Lewin, W.H.G., van der Klis, M., Compact Stellar X-ray Sources, Cambridge University Press, Cambridge, 2006;
- 3. Longair, M. S., High Energy Astrophysics, Cambridge University Press, Cambridge, 2011;
- 4. Seward, F. D., Charles, P. A., Exploring the X-ray Universe, Cambridge University Press, Cambridge, 2010;

Course language:

Slovak, English

Course assessment

Total number of assessed students: 0

N	P
0.0	0.0

Provides: doc. RNDr. Rudolf Gális, PhD.

Date of last modification: 21.02.2017

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚFV/ CDC/04	Course name: Citation in scientific journal published in the country of residence		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:		
Number of credits: 5	<u> </u>		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Course assessment Total number of asses	ssed students: 0		
	abs n		
0.0			
Provides:			
Date of last modifica	tion: 01.03.2017		
11	nteedoc. Mgr. Štefan Parim RNDr. Michal Hnatič, DrSc.	ucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,	

University: P. J. Šafá	rik University in Koš	ice
Faculty: Faculty of S	cience	
Course ID: ÚFV/ CM/04		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pro	rse-load (hours): ly period:	
Number of credits: 2	20	
Recommended seme	ester/trimester of the	course:
Course level: III.		
Prerequisities:		
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the	course:	
Recommended litera	ature:	
Course language:		
Course assessment Total number of asse	ssed students: 1	
	abs n	
100.0 0.0		
Provides:		•
Date of last modifica	ation: 01.03.2017	
Approved: Co-guara PhD.Guaranteeprof. l	•	Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, DrSc.

University: P. J. Šafá	arik University in Košice	;	
Faculty: Faculty of S	Science		
Course ID: ÚFV/ CZC/04	D: ÚFV/ Course name: Citation in scientific journal published abroad		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pro	rse-load (hours): ly period:		
Number of credits:	10		
Recommended seme	ester/trimester of the co	ourse:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the o	course:		
Recommended litera	ature:		
Course language:			
Course assessment Total number of asse	essed students: 30		
	abs		
100.0 0.0			
Provides:		·	
Date of last modifica	ation: 01.03.2017		
	ınteedoc. Mgr. Štefan Pa RNDr. Michal Hnatič, D	rimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, rSc.	

University: P. J. Šaf	árik University in Koši	ce	
Faculty: Faculty of	Science		
Course ID: ÚFV/ DK/04			
Course type, scope Course type: Recommended cou Per week: Per stu Course method: pr	ırse-load (hours): dy period:		
Number of credits:	2		
Recommended sem	ester/trimester of the	course:	
Course level: III.			
Prerequisities:			
Conditions for cour	se completion:		
Learning outcomes	:		
Brief outline of the	course:		
Recommended liter	ature:		
Course language:			
Course assessment Total number of asse	essed students: 115		
	abs	n	
100.0 0.0			
Provides:		•	
Date of last modific	ation: 01.03.2017		
11	anteedoc. Mgr. Štefan i	Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,	

University: P. J. Šafá	rik University in Košice	-	
Faculty: Faculty of S	cience		
Course ID: ÚFV/ DKC/04	Course name: Journals registered in the Current Contents Connect database and published in the country of residence		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 1	5		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:	Prerequisities:		
Conditions for course completion:			
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	nture:		
Course language:			
Course assessment Total number of asse	ssed students: 7		
	abs		
100.0 0.0			
Provides:			
Date of last modifica	ntion: 01.03.2017		
	nteedoc. Mgr. Štefan Parimu RNDr. Michal Hnatič, DrSc.	cha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,	

University: P. J. Šafa	arik University in Koši	ce
Faculty: Faculty of S	Science	
Course ID: ÚFV/ DKZU/04		
Course type, scope and Course type: Recommended course week: Per students of Course method: pr	rse-load (hours): dy period:	
Number of credits:	4	
Recommended sem	ester/trimester of the	course:
Course level: III.		
Prerequisities:		
Conditions for cour	se completion:	
Learning outcomes:		
Brief outline of the	course:	
Recommended liter	ature:	
Course language:		
Course assessment Total number of asse	essed students: 227	
	abs	
100.0 0.0		
Provides:		
Date of last modific	ation: 01.03.2017	
	ınteedoc. Mgr. Štefan I RNDr. Michal Hnatič,	Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, DrSc.

University: P. J. Šafá	rik University in Koš	šice	
Faculty: Faculty of S	cience		
Course ID: ÚFV/ DNC/04	Course name: Journals not registered in the Current Contents Connect database and published in the country of residence		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 5	5		
Recommended seme	ster/trimester of the	e course:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the c	course:		
Recommended litera	ature:		
Course language:			
Course assessment Total number of asse	ssed students: 12		
	abs n		
100.0 0.0			
Provides:		•	
Date of last modifica	ntion: 01.03.2017		
Approved: Co-guara	C	Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,	

University: P. J. Šafárik University in Košice
Faculty: Faculty of Science

Course ID: ÚFV/ Course name: Photometry

FOTA/15

Course type, scope and the method:

Course type: Lecture

Recommended course-load (hours): Per week: 2 Per study period: 28

Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:

oral exam and test

Learning outcomes:

inform students about advanced methods of astronomical photometry

Brief outline of the course:

Detection of objects, background determination. Aperture photometry, apertures optimization, profile fitting. PSF photometry. Image substraction method. Measurements calibration, removing systematic trends and errors. Transformation to international system.

Recommended literature:

- 1. Budding & Demircan: 2007, Introduction to Astronomical Photometry, Cambridge University Press
- 2. Howell: 2000, Handbook of CCD Astronomy, Cambridge University Press
- 3. Lena et al.: 1996, Observational Astrophysics, Springer-Verlag
- 4. Martinez a Klotz: 1998, A practical giude to CCD Astronomy, Cambridge University Press. manuals to software packages, published papers and internet sources

Course language:

Slovak, English

Course assessment

Total number of assessed students: 4

N	P
0.0	100.0

Provides: doc. Mgr. Štefan Parimucha, PhD.

Date of last modification: 21.02.2017

University: P. J. Šafárik University in Košice
Faculty: Faculty of Science

Course ID: ÚFV/ Course name: Physics of the close binaries FTDV/15

Course type, scope and the method:

Course type: Lecture

Recommended course-load (hours): Per week: 2 Per study period: 28

Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities:

Conditions for course completion:

oral exam

Learning outcomes:

Obtaining knowledges about methods about close binaries research and their structure and evolution.

Brief outline of the course:

Kopal's classification of close binaries. Creation and evolution of close binaries. Physical processes in close binaries: mass transfer, outflow, tidal pulsations, accretion disks, mass flows. Methods of observations: photometry, spectroscopy, interferometry, polarimetry, Doppler thomography. Determination of orbital parameters and absolute parameters of bodies.

Recommended literature:

- 1. Hilditch, R.W.: 2001, An introduction to Close binary Stars, Cambridge University Press
- 2. Kallrath, J., Milone, E.F.: 1999, Eclipsing Binary Stars, Springer Verlag
- 3. Richards, M.T., Hubeny, I. (eds.):2012, "From Interacting Binaries to Exoplanets: Essential Modeling Tools", proceedings of IAU Symposium 282, Cambridge University Press

Course language:

Slovak, English

Course assessment

Total number of assessed students: 0

N	P
0.0	0.0

Provides: Mgr. Theodor Pribulla, CSc.

Date of last modification: 21.02.2017

University: P. J. Šafá	rik University in Košio	ee
Faculty: Faculty of S	cience	
Course ID: ÚFV/ IG/04	Course name: Acquirement of Internal Grant	
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:	
Number of credits: 1	0	
Recommended seme	ster/trimester of the	course:
Course level: III.		
Prerequisities:		
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the o	ourse:	
Recommended litera	nture:	
Course language:		
Course assessment Total number of asse	ssed students: 97	
	abs	n
	100.0	0.0
Provides:		
Date of last modifica	ntion: 01.03.2017	
· · · · · · · · · · · · · · · · · · ·	nteedoc. Mgr. Štefan P RNDr. Michal Hnatič. l	arimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: Dek. PF Course name: Spring School for PhD Students JPJŠ/JSD/14			
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: Per study period: 4d Course method: present			
Number of credits: 2			
Recommended semester/trimester of the cours	se:		
Course level: III.			
Prerequisities:	Prerequisities:		
Conditions for course completion:			
Learning outcomes:			
Brief outline of the course:			
Recommended literature:			
Course language:			
Course assessment Total number of assessed students: 115			
abs	n		
100.0	0.0		
Provides: doc. RNDr. Vladimír Zeleňák, PhD.			
Date of last modification: 13.02.2017			
Approved: Co-guaranteedoc. Mgr. Štefan Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, PhD.Guaranteeprof. RNDr. Michal Hnatič, DrSc.			

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ | **Course name:** Quantum field theory

KTPA/15

Course type, scope and the method:

Course type: Lecture

Recommended course-load (hours): Per week: 4 Per study period: 56

Course method: present

Number of credits: 8

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities:

Conditions for course completion:

Exam

Learning outcomes:

To acquaint with quantum field theory methods and their application in theory of elementary particles and astrophysics.

Brief outline of the course:

- 1. Quantum field, Lagrange formalism, interacting quantum fields, Wick theorems and Feynman diagrammatic technique, higher orders of perturbation theory.
- 2. Application of quantum field theory in the theory of elementary particles: standard model, unified theories of elementary particles.
- 3. Application of quantum field theory in statistical physics. Feynman diagrams.
- 4. Critical dynamics and description of scaling at phase transitions by means of quantum-field technique and renormalization group.

Selection of aforementioned topics will be made by supervisor according to the content and aims of PhD thesis

Recommended literature:

- 1. L.H. Ryder, Quantum Field Theory, Cambridge University Press, Cambridge, 1996.
- 2. A. Zee, Quantum Field Theory in Nutshell, Princeton University Press, Princeton, 2010.
- 3. P. Ramond, Field Theory: A Modern Primer, Westview Press, 1990.
- 4. Zinn-Justin J., Quantum Field Theory and Critical Phenomena, Claredon Press, Oxford, 2004.
- 5. W. Greiner, J. Reinhardt, Field Quantization, Springer, Berlin, 1996.
- 6. W. Greiner, J. Reinhardt, Quantum Electrodynamics, Springer, Berlin, 2009.
- 7. W. Greiner, S. Schramm, E. Stein, Quantum Chromodynamics, Springer, Berlin, 2007.
- 8. A.N. Vasiliev, The Field Theoretic Renormalization Group in Critical Behavior Theory and Stochastic Dynamics, Chapman & Hall/CRC Press Company Boca Raton, London, 2004.

Course language:

Slovak, English

Course assessment

Total number of assessed students: 0

N	P
0.0	0.0

Provides: prof. RNDr. Michal Hnatič, DrSc.

Date of last modification: 21.02.2017

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ MK/04	Course name: International Conference		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period: esent		
Number of credits: 6	ster/trimester of the cou		
Course level: III.	ster/trimester of the coul	se:	
Prerequisities:	Prerequisities:		
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended literature:			
Course language:	Course language:		
Course assessment Total number of asse	ssed students: 316		
	abs	n	
	100.0	0.0	
Provides:			
Date of last modifica	tion: 01.03.2017		
	nteedoc. Mgr. Štefan Parir RNDr. Michal Hnatič. DrS	nucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális	

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚFV/ Course name: Numerical methods of astrophysics NMAS/15 Course type, scope and the method: Course type: Lecture **Recommended course-load (hours):** Per week: 4 Per study period: 56 Course method: present **Number of credits: 8** Recommended semester/trimester of the course: 3. Course level: III. **Prerequisities: Conditions for course completion: Learning outcomes:** Acquaint students about advanced numerical methods for solving of problems in astrophysics. **Brief outline of the course:** Monte-Carlo simulations in astrophysics, error determination of parameters. Simulation of mass transfer and accretion disks. N-body system dynamics. **Recommended literature:** 1. Press et. al.: 2002, Numerical Recipes in C.: Cambridge University Press 2. Robert & Cassela: 2005, Monte Carlo Statistical Methods, Springer manuals for packages NumPy, SciPy, PyKE, published papers Course language: Slovak, English Course assessment

Total number of assessed students: 2

N	P
0.0	100.0

Provides: doc. Mgr. Štefan Parimucha, PhD.

Date of last modification: 21.02.2017

University: P. J. Šafá	rik University in Košic	ee e
Faculty: Faculty of S	cience	
Course ID: ÚFV/ NZ/04	Course name: Non-reviewed collections of papers and monographs published abroad or in the country of residence	
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period:	
Number of credits: 2	2	
Recommended seme	ester/trimester of the c	course:
Course level: III.		
Prerequisities:		
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the c	course:	
Recommended litera	iture:	
Course language:		
Course assessment Total number of asse	ssed students: 88	
	abs	n
	100.0	0.0
Provides:		
Date of last modifica	ition: 01.03.2017	
,	nteedoc. Mgr. Štefan P RNDr. Michal Hnatič, I	arimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, DrSc.

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚFV/ Course name: Planetary systems PLSD/15 Course type, scope and the method: Course type: Lecture **Recommended course-load (hours):** Per week: 2 Per study period: 28 Course method: present Number of credits: 5 Recommended semester/trimester of the course: 2. Course level: III. **Prerequisities: Conditions for course completion:**

Learning outcomes:

exam

Obtaining knowledges about methods of exoplanet searching and their physical properties.

Brief outline of the course:

Methods of exoplanets detection: transits, radial velocities, microlensing, direct imaging. Dynamic of exoplanets. Creation and evolution of exoplanets, evolution of protoplanetary discs. Atmosphere of exoplanets.

Recommended literature:

- 1. Haswell: 2010, Transiting exoplanets, Cambridge University Press
- 2. Perryman: 2011, The exoplanet handbook, Cambridge University Press
- 3. Seager (eds.): 2010, Exoplanets, The University of Arizona Press, Tuscon

Course language:

Slovak, English

Course assessment

Total number of assessed students: 2

N	P
0.0	100.0

Provides: Mgr. Martin Vaňko, PhD.

Date of last modification: 21.02.2017

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: ÚFV/ POVK/04	Course name: Work in Organizing Committee of Conference	
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:	
Number of credits: 2	2	
Recommended seme	ster/trimester of the cou	rse:
Course level: III.		
Prerequisities:		
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	nture:	
Course language:		
Course assessment Total number of asse	ssed students: 68	
	abs	n
	100.0	0.0
Provides:		·
Date of last modifica	ntion: 01.03.2017	
	nteedoc. Mgr. Štefan Pari: RNDr. Michal Hnatič. DrS	nucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,

University: P. J. Šafá	rik University in Košice	· · · · · · · · · · · · · · · · · · ·
Faculty: Faculty of S	cience	
Course ID: ÚFV/ PPC/04	Course name: Teaching activities	
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:	
Number of credits: 1		
Recommended seme	ster/trimester of the cours	e:
Course level: III.		
Prerequisities:		
Conditions for cours	e completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	iture:	
Course language:		
Course assessment Total number of asses	ssed students: 204	
	abs	n
	100.0	0.0
Provides:		
Date of last modifica	tion: 01.03.2017	
11	nteedoc. Mgr. Štefan Parim RNDr. Michal Hnatič, DrSc	ucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,

University: P. J. Šafá	rik University in Košice	· · · · · · · · · · · · · · · · · · ·
Faculty: Faculty of S	cience	
Course ID: ÚFV/ PPC/04	Course name: Teaching activities	
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:	
Number of credits: 1		
Recommended seme	ster/trimester of the cours	e:
Course level: III.		
Prerequisities:		
Conditions for cours	e completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	iture:	
Course language:		
Course assessment Total number of asses	ssed students: 204	
	abs	n
	100.0	0.0
Provides:		
Date of last modifica	tion: 01.03.2017	
11	nteedoc. Mgr. Štefan Parim RNDr. Michal Hnatič, DrSc	ucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ Course name: Populations of the interplanetary bodies

PTMH/15

Course type, scope and the method:
Course type: Lecture

Recommended course-load (hours): Per week: 2 Per study period: 28

Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:

Exam

Learning outcomes:

Obtaining detailed knowledges about populations of interplanetary matter.

Brief outline of the course:

Meteoroids flows, near-earth asteroids, new comets under Oort, Troians. Ice objects of Edgeworth-Kuiper belt: orbits physical properties, dynamical and physical evolution

Recommended literature:

- 1. Bottke, Cellino, Paolicchi, Binzel,: 2002, Asteroids III, University of Arizona Press
- 2. Hawkes, Mann, Brown: 2005, Modern Meteor Science, Springer
- 3. Fernández, Lazzaro, Prialnik, Schulz: 2010, Icy Bodies of the Solar System, Cambridge University Press
- 4. Swamy: 2010, Physics of comets, World Scientific

Course language:

Slovak, English

Course assessment

Total number of assessed students: 0

N	P
0.0	0.0

Provides: doc. RNDr. Ján Svoreň, DrSc.

Date of last modification: 21.02.2017

University: P. J. Šafá	rik University in Košice	;	
Faculty: Faculty of S	Science		
Course ID: ÚFV/ PVS/04	Course name: Author's patents, discoveries, software		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pro	rse-load (hours): ly period:		
Number of credits: 2	2		
Recommended seme	ester/trimester of the co	ourse:	
Course level: III.	,		
Prerequisities:	Prerequisities:		
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the o	course:		
Recommended litera	Recommended literature:		
Course language:			
Course assessment Total number of asse	essed students: 34		
abs n			
100.0 0.0			
Provides:		·	
Date of last modifica	ation: 01.03.2017		
	nteedoc. Mgr. Štefan Pa RNDr. Michal Hnatič, D	rimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, rSc.	

University: P. J. Šaf	arik University in Koš	ice	
Faculty: Faculty of	Science		
Course ID: ÚFV/ RZ/04	FV/ Course name: Reviewed Proceedings		
Course type, scope Course type: Recommended cou Per week: Per stu Course method: pr	urse-load (hours): dy period:		
Number of credits:	5		
Recommended sem	ester/trimester of the	course:	
Course level: III.			
Prerequisities:			
Conditions for cour	rse completion:		
Learning outcomes	:		
Brief outline of the	course:		
Recommended literature:			
Course language:			
Course assessment Total number of ass	essed students: 144		
abs n			
100.0 0.0			
Provides:			
Date of last modific	eation: 01.03.2017		
11	anteedoc. Mgr. Štefan	Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,	

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ Cou

Course name: Seminar in astrophysics

SASTa/15

Course type, scope and the method:

Course type: Practice

Recommended course-load (hours): Per week: 3 Per study period: 42

Course method: present

Number of credits: 3

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Acquaint students with actual problems of astronomy and astrophysics and presentation of own results

Brief outline of the course:

Scientific seminar about problems of astronomy and astrophysics, problems of dissertation thesis.

Recommended literature:

Current papers in astronomical and astrophysical journals.

Course language:

Slovak, English

Course assessment

Total number of assessed students: 4

N	P
0.0	100.0

Provides: doc. RNDr. Rudolf Gális, PhD., doc. Mgr. Štefan Parimucha, PhD.

Date of last modification: 21.02.2017

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ | **Course name:** Seminar in Astrophysics

SASTb/15

Course type, scope and the method:

Course type: Practice

Recommended course-load (hours): Per week: 3 Per study period: 42

Course method: present

Number of credits: 3

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Acquaint students with actual problems of astronomy and astrophysics and presentation of own results

Brief outline of the course:

Scientific seminar about problems of astronomy and astrophysics, problems of dissertation thesis.

Recommended literature:

Current papers in astronomical and astrophysical journals.

Course language:

Slovak, English

Course assessment

Total number of assessed students: 4

N	P
0.0	100.0

Provides: doc. RNDr. Rudolf Gális, PhD., doc. Mgr. Štefan Parimucha, PhD.

Date of last modification: 21.02.2017

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ Course

Course name: Seminar in astrophysics

SASTc/15

Course type, scope and the method:

Course type: Practice

Recommended course-load (hours): Per week: 3 Per study period: 42

Course method: present

Number of credits: 3

Recommended semester/trimester of the course: 3.

Course level: III.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Acquaint students with actual problems of astronomy and astrophysics and presentation of own results

Brief outline of the course:

Scientific seminar about problems of astronomy and astrophysics, problems of dissertation thesis.

Recommended literature:

Current papers in astronomical and astrophysical journals.

Course language:

Slovak, English

Course assessment

Total number of assessed students: 2

N	P
0.0	100.0

Provides: doc. RNDr. Rudolf Gális, PhD., doc. Mgr. Štefan Parimucha, PhD.

Date of last modification: 21.02.2017

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ Course name: Seminar in astrophysics SASTd/15

Course type, scope and the method:

Course type: Practice

Recommended course-load (hours): Per week: 3 Per study period: 42

Course method: present

Number of credits: 3

Recommended semester/trimester of the course: 4.

Course level: III.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Acquaint students with actual problems of astronomy and astrophysics and presentation of own results

Brief outline of the course:

Scientific seminar about problems of astronomy and astrophysics, problems of dissertation thesis.

Recommended literature:

Current papers in astronomical and astrophysical journals.

Course language:

Slovak, English

Course assessment

Total number of assessed students: 2

N	P
0.0	100.0

Provides: doc. RNDr. Rudolf Gális, PhD., doc. Mgr. Štefan Parimucha, PhD.

Date of last modification: 21.02.2017

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚFV/ SCI/04	Course name: Citation registered in Science Citation Index		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 2	20		
Recommended seme	ester/trimester of the co	urse:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the c	course:		
Recommended litera	ature:		
Course language:	Course language:		
Course assessment Total number of asse	ssed students: 103		
abs n			
100.0 0.0			
Provides:			
Date of last modifica	ition: 01.03.2017		
	nteedoc. Mgr. Štefan Par RNDr. Michal Hnatič, Dr	rimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, rSc.	

University: P. J. Šafá	rik University in Košic	e
Faculty: Faculty of S	cience	
Course ID: ÚFV/ SDPR/04	Course name: Co-worker of project supported by national grant schemes	
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pro	rse-load (hours): ly period:	
Number of credits: 2	2	
Recommended seme	ster/trimester of the c	ourse:
Course level: III.		
Prerequisities:		
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the o	course:	
Recommended litera	ature:	
Course language:		
Course assessment Total number of asse	ssed students: 353	
	abs	
100.0 0.0		
Provides:		·
Date of last modifica	ntion: 01.03.2017	
	nteedoc. Mgr. Štefan Pa RNDr. Michal Hnatič, I	arimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, DrSc.

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ Course name: Solar activity
SLAA/15

Course type, scope and the method:

Course type: Lecture

Recommended course-load (hours): Per week: 2 Per study period: 28

Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities:

Conditions for course completion:

exam

Learning outcomes:

Knowledges about physical properties of plasma in solar interior and atmosphere, about physics of active regions on the Sun and understanding of solar activity cycle.

Brief outline of the course:

Solar interior - solar activity cycles, Tachocline, solar atmosphere - energy transfer and radiation, magnetic field of the Sun and active regions, solar spots, eruptions, coronal mass ejections, Solar dynamics, Helioseismology

Recommended literature:

- 1. Aschwanden Markus, Physics of the Solar Corona: An Introduction with Problems and Solutions, Springer, 2006
- 2. Priest, E.R.: Solar Magnetohydrodynamics, Reidel, 1982.
- 3. Stix M.: The Sun, An Introduction, Springer, 2nd edition, 2002.
- 4. Sturrock, Holzer, Mihalas, Ulrich, Physics of the Sun I. II. III. Geophysics and Astrophysics Monorgaphs, Riedel Publ. Dodrecht 1968
- 5. Zirin, H., Astrophysics of the Sun, Cambridge Univ. Press, Cambridge, 1988

Course language:

Slovak, English

Course assessment

Total number of assessed students: 0

N	P
0.0	0.0

Provides: RNDr. Aleš Kučera, CSc.

Date of last modification: 21.02.2017

University: P. J. Šafá	rik University in Ko	šice	
Faculty: Faculty of S	cience		
Course ID: ÚFV/ SMPR/04	Course name: Co-worker of project supported by international grant schemes		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 1	5		
Recommended seme	ster/trimester of the	e course:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the c	course:		
Recommended litera	iture:		
Course language:	Course language:		
Course assessment Total number of asses	ssed students: 79		
	abs n		
100.0 0.0			
Provides:			
Date of last modifica	ntion: 01.03.2017		
Approved: Co-guaran	•	Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,	

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ | Course name: Spectroscopy

SPKD/15

Course type, scope and the method:

Course type: Lecture

Recommended course-load (hours): Per week: 2 Per study period: 28

Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:

Seminar essay. Oral exam with preparation; 3 questions within the curriculum presented during the course.

Learning outcomes:

Become acquainted with the basics of acquisition, processing and analysis of stellar spectra.

Brief outline of the course:

Spectroscopic tools a detectors. The measurement and behaviour of stellar continua and spectral lines.

Recommended literature:

- 1. Gray, D.F., The observation and analysis of stellar photospheres, Cambridge University Press, Cambridge, 1992;
- 2. Böhm-Vitense, E., Introduction to stellar astrophysics, Stellar atmospheres, Cambridge University Press, Cambridge, 1997;
- 3. Kipenhahn, R., Weigert, A., Stellar Structure and evolution, Springer-Verlag, Berlin, 1990;

Course language:

Slovak, English

Course assessment

Total number of assessed students: 4

N	P
0.0	100.0

Provides: doc. RNDr. Rudolf Gális, PhD.

Date of last modification: 21.02.2017

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚFV/ SSOL/04			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 2	2		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the o	course:		
Recommended litera	nture:		
Course language:			
Course assessment Total number of assessed students: 157			
	N P		
0.0 100.0			
Provides:			
Date of last modification: 21.02.2017			
Approved: Co-guaranteedoc. Mgr. Štefan Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, PhD.Guaranteeprof. RNDr. Michal Hnatič, DrSc.			

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚFV/ **Course name:** Introduction to standard model USMA/15 Course type, scope and the method: Course type: Lecture **Recommended course-load (hours):** Per week: 2 Per study period: 28 Course method: present Number of credits: 5 Recommended semester/trimester of the course: 3. Course level: III. **Prerequisities: Conditions for course completion:** exam **Learning outcomes:** The aim of the course is to give to the students, oriented to the astrophysics, basic knowldges about unified theory of electro-weak interactions **Brief outline of the course:** 1. From the metodological point of view the lectures are based on explanation of known processes of weak interaction where beta-decay belongs. 2.Genesis of modern electro-weak theory and standard model is given by inductive method starting from definition of V-A currents, choise of appropriate calibration symmetry, corresponding intermediate bosons and Yang Mils quantum fields and Higgs mechanism. 3.As a result the modern formulation of Glashow- Weinberg-Salam standard model is proposed. **Recommended literature:** 1. J. Hořejší: Introduction to electroweak unification (World Scientific, Singapore 1994); czech version: Elektroslabé sjednocení a stromová unitarita (Karolinum, Praha 1993). 2. P. Renton: Electroweak interactions (Cambridge Univ. Press, Cambridge 1990). 3. Francis Halzen, Alan D. Martin: Quarks and Leptons, John Wiley&Sons; in russian: F.Helzen, A.D.Martin: Kvarki i leptoni, Mir, Moskva, 1987. 4. Cheng T.P., Li L.F.: Gauge theory of elementary particle Physics, Claredon Press, Oxford, 1984. Course language: Slovak, English Course assessment Total number of assessed students: 0 N P 0.0 0.0

Date of last modification: 21.02.2017

Provides: prof. RNDr. Michal Hnatič, DrSc.

University: P. J. Šafá	rik University in Košic	e
Faculty: Faculty of S	cience	
Course ID: ÚFV/ VBP/04	Course name: Supervisor/consultant of bacelor thesis	
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pro	rse-load (hours): ly period:	
Number of credits: (5	
Recommended seme	ster/trimester of the c	ourse:
Course level: III.		
Prerequisities:		
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the o	course:	
Recommended litera	ature:	
Course language:		
Course assessment Total number of asse	ssed students: 34	
	abs	n
100.0 0.0		
Provides:		·
Date of last modifica	ntion: 01.03.2017	
	nteedoc. Mgr. Štefan Pa RNDr. Michal Hnatič, I	arimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, PrSc.

University: P. J. Šaf	arik University in Ko	šice
Faculty: Faculty of	Science	
Course ID: ÚFV/ VPBP/04	Course name: Elaboration of reviewer report	
Course type, scope Course type: Recommended cou Per week: Per stu Course method: pr	urse-load (hours): dy period:	
Number of credits:	2	
Recommended sem	ester/trimester of the	e course:
Course level: III.		
Prerequisities:		
Conditions for cour	rse completion:	
Learning outcomes	:	
Brief outline of the	course:	
Recommended liter	ature:	
Course language:		
Course assessment Total number of ass	essed students: 18	
abs		
100.0 0.0		
Provides:		
Date of last modific	eation: 01.03.2017	
11	anteedoc. Mgr. Štefan RNDr. Michal Hnatič	Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ VPSV/04	Course name: Supervision of Student's Scientific Activity		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 6)		
Recommended seme	Recommended semester/trimester of the course:		
Course level: III.			
Prerequisities:			
Conditions for course completion:			
Learning outcomes:			
Brief outline of the c	Brief outline of the course:		
Recommended litera	ature:		
Course language:			
Course assessment Total number of asse	ssed students: 13		
	abs	n	
100.0 0.0			
Provides:			
Date of last modifica	tion: 01.03.2017		
Approved: Co-guaranteedoc. Mgr. Štefan Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, PhD.Guaranteeprof. RNDr. Michal Hnatič, DrSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚFV/ VYS/04	Course name: Presentation in Seminar		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 2			
Recommended seme	ster/trimester of the cour	se:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Course assessment Total number of asse	ssed students: 282		
abs			
100.0 0.0			
Provides:			
Date of last modifica	tion: 01.03.2017		
	nteedoc. Mgr. Štefan Parim RNDr. Michal Hnatič. DrSc	ucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális,	

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: ÚFV/ ZKC/04	Course name: Journals Registered by Current Contets Database	
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period:	
Number of credits: 2	20	
Recommended seme	ster/trimester of the cours	se:
Course level: III.		
Prerequisities:		
Conditions for cours	e completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	iture:	
Course language:		
Course assessment Total number of asse	ssed students: 333	
	abs	n
100.0 0.0		
Provides:		
Date of last modifica	tion: 01.03.2017	
Approved: Co-guaranteedoc. Mgr. Štefan Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, PhD.Guaranteeprof. RNDr. Michal Hnatič, DrSc.		

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: ÚFV/ ZNC/04	Course name: Journals not registered in the Current Contents Connect database and published abroad	
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period:	
Number of credits: 5		
Recommended seme	ster/trimester of the co	irse:
Course level: III.		
Prerequisities:		
Conditions for cours	e completion:	
Learning outcomes:		
Brief outline of the course:		
Recommended literature:		
Course language:		
Course assessment Total number of asse	ssed students: 40	
abs n		
100.0 0.0		
Provides:		·
Date of last modifica	tion: 01.03.2017	
	nteedoc. Mgr. Štefan Par RNDr. Michal Hnatič. Dr	imucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, Sc.

University: P. J. Šafá	rik University in Koš	ice
Faculty: Faculty of S	Science	
Course ID: ÚFV/ ZSP/04	Course name: Study Stay Abroad	
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pro	rse-load (hours): ly period:	
Number of credits: 2	2	
Recommended seme	ester/trimester of the	course:
Course level: III.		
Prerequisities:		
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the	course:	
Recommended litera	ature:	
Course language:		
Course assessment Total number of asse	essed students: 216	
abs		
100.0 0.0		
Provides:		•
Date of last modifica	ation: 01.03.2017	
11	nteedoc. Mgr. Štefan RNDr. Michal Hnatič,	Parimucha, PhD.Co-guaranteedoc. RNDr. Rudolf Gális, DrSc.