





University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: Methodology of scientific research			
Teachers: Savić M. Miroslav, Krajnović M. Dušanka, Kotur-Stevuljević M. Jelena, Bogavac-Stanojević B. Nataša			
Course status: Mandatory common, module: Doctoral academic studies			
Semester: I	Year of studies: I		
ECTS points: 5	Course code: Д1031		
Requirements: none			
Course aims: The aim of this course is to provide participants with general scientific skills in order to formulate a scientific problem and plan the experiment, as well as to understand the complete process of preparation and publication of scientific research results			
Course outcomes: By the end of this course participants will be able to summarize and apply the principles of the methodology of scientific-research work and scientific writing			
Course contents: Science and scientific method. Problem and scientific problem. Hypothesis. Hypothesis verification: scientific observation and scientific experiment. Common methodology of scientific research in biomedicine. Classification of research. Experimental research in laboratory. Animal experiments. Types of studies in epidemiological investigations. Ethics and biomedical investigations. Ethical codex of scientific-research work. Generation of biomedical information. Communications. Networks. Internet. Internet search engines. Authorship/co-authorship. Role and duties of principal investigator. Protection of intellectual property. Classification of scientific work. Writing of scientific and professional papers. Literature citing. Review process. Oral presentation of scientific work (adaptation to audience and situation). Designing PowerPoint slides for a scientific presentation. Introduction to writing of project proposals. Master's thesis and doctoral dissertation.			
Recommended literature: 1 Cargill, M, O'Connor P. Writing scientific research articles: Strategy and steps. John Wiley & Sons, 2013. 2. Baumgartner TA, Hensley LD. Conducting and Reading Research in Health and Human performance. Mc Graw Hill, Boston, 2006 3. Machin D, Campbell MJ. Design of studies for medical research. John Wiley & Sons, Hoboken, 2005. 4. Peat J, Elliot E, Baur L, Keena V. Scientific writing – easy when you know how. BMJ Books, London, 2002. 5. Albert T. The A-Z of medical writing. BMJ Books, London, 2000. 6. Hudson Jones A, McLeallan F. Ethical Issues in Biomedical Publication. Baltimore: John Hopkins University Press, 2000.			
The total of active learning classes	Lectures: 30		
	Individual research work: 30		
Teaching methods: Lectures and study-research work			
Grading system: Seminar: 30 points; written exam: 70 points			

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: Statistics in research			
Teachers: Bogavac-Stanojević B. Nataša, Kotur-Stevuljević M. Jelena			
Course status: Mandatory common, module: Doctoral academic studies			
Semester: I	Year of studies: I		
ECTS points: 5	Course code: Д1032		
Requirements: One semester of undergraduate studies in mathematics and statistics pharmaceutical / medical biochemistry / medicine			
Course aims: Understanding advanced statistical methods. Applying advanced statistical analyses in scientific research.			
Course outcomes: After completing the course students will be trained to: <ul style="list-style-type: none"> - Recognizing the type of statistical analysis - Interpret the significance of the obtained statistical indicators and discuss the results, - Understand the importance of the application of statistical methods in the scientific research, - Use statistical software in the data analysis 			
Course contents: One-way analysis of variance (ANOVA). Two-way analysis of variance. ANOVA with replication. Post-hoc tests. Simple linear regression analysis. Multiple regression analyses. Logistic regression. Analysis of covariance. Nonparametric analysis of variance. Nonparametric correlation. Chi-square test. Confidence interval. Student's research: Solving different statistical problems and tasks.			
Recommended literature: <ol style="list-style-type: none"> 1. Sheskin DJ. Handbook of parametric and nonparametric statistical procedures Chapman & Hall/CRC, Washington, D.C., 2000. 2. Vittingoff E, Shiboski SC, Glidden DV, McCulloch CE. Regression Methods in Biostatistics, Springer Science + Business Media, New York, 2005. 3. Selvin S. Statistica Analysis of Epidemiological Data, Oxford University Press, Oxford, 1996. 4. Tamhane AJ, Dunlop DD. Statistics and Data Analysis, Prentice Hall, Upper Saddle River, NJ, 2000. 			
The total of active learning classes	Lectures: 30		
	Individual research work: 30		
Teaching methods: Lectures, computer exercises, solving practical problems			
Grading system: The presence at lectures: 30 points; Written Exam: 70 points.			

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES	
Course title: Seminar 1		
Teachers: Ivanović P. Darko, Zečević L. Mira, Malenović M. Anđelija, Stojanović S. Biljana, Miletić Đ. Ivanka, Šobajić S. Slađana, Stanković M. Ivan, Đorđević I. Brižita, Vuleta M. Gordana, Milić R. Jela, Primorac M. Marija, Savić D. Snežana, Vasiljević D. Dragana, Krajišnik R. Danina, Đekić M. Ljiljana, Spasić M. Slavica, Jelić-Ivanović D. Zorana, Spasojević-Kalimanovska V. Vesna, Stojanov D. Marina, Ignjatović D. Svetlana, Topić S. Aleksandra, Dopsaj B. Violeta, Bogavac-Stanojević B. Nataša, Kotur-Stevuljević M. Jelena, Tasić M. Ljiljana, Marinković D. Valentina, Krajnović M. Dušanka, Miljković R. Branislava, Vezmar Kovačević D. Sandra, Vučićević M. Katarina, Kovačević N. Nada, Petrović D. Silvana, Maksimović A. Zoran, Kundaković D. Tatjana, Drobac M. Milica, Ugrešić D. Nenad, Stepanović-Petrović M. Radica, Savić M. Miroslav, Ilić V. Katarina, Novaković N. Aleksandra, Tomić A. Maja, Leposavić M. Gordana, Arsenović-Ranin M. Nevena, Stojić-Vukanić M. Zorica, Plečaš-Solarović A. Bosiljka, Pešić P. Vesna, Nedeljković S. Miodrag, Milenković T. Marina, Antić Stanković A. Jelena, Parojčić V. Jelena, Ibrić R. Svetlana, Đuriš D. Jelena, Grbić V. Sandra, Đurić R. Zorica, Vladimirov M. Sote, Agbaba D. Danica, Bulat L. Zorica, Matović J. Vesna, Antonijević M. Biljana, Vujanović L. Dragana, Đukić M. Mirjana		
Course status: Mandatory common, module: Doctoral academic studies		
Semester: I	Year of studies: I	
ECTS points: 5	Course code: D1033	
Requirements: none		
Course aims: This course aims to enable the participant to: search the scientific literature effectively and thoroughly; perform a critical analysis of publications relevant for his/her study field; apply the principles of making a successful oral presentation in English.		
Course outcomes: By the end of this course participants will be able to: search the scientific literature effectively and thoroughly; perform a critical analysis of publications relevant for his/her study field; apply the principles of making a successful oral presentation in English		
Course contents: Collection of pertinent literature (by use of bibliographic databases, web sites of publishers, general search engines). Preparation of personal databases. Contextual analysis of key publications in a field. Preparation and presentation of the published results.		
Recommended literature: 1. Alley M. The craft of scientific presentations. Critical steps to succeed and critical errors to avoid. Springer-Verlag New York, Inc., 2003. 2. Original scientific papers and review articles in the field of the participant's research activity.		
The total of active learning classes	Lectures: 30	
	Individual research work: 60	
Teaching methods: Study-research work		
Grading system: Seminar: 70 points; written exam: 30 points		


University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES	
Course title: Seminar 2		
Teachers: Ivanović P. Darko, Zečević L. Mira, Malenović M. Anđelija, Stojanović S. Biljana, Miletić Đ. Ivanka, Šobajić S. Slađana, Stanković M. Ivan, Đorđević I. Brižita, Vuleta M. Gordana, Milić R. Jela, Primorac M. Marija, Savić D. Snežana, Vasiljević D. Dragana, Krajišnik R. Danina, Đekić M. Ljiljana, Spasić M. Slavica, Jelić-Ivanović D. Zorana, Spasojević-Kalimanovska V. Vesna, Stojanov D. Marina, Ignjatović D. Svetlana, Topić S. Aleksandra, Dopsaj B. Violeta, Bogavac-Stanojević B. Nataša, Kotur-Stevuljević M. Jelena, Tasić M. Ljiljana, Marinković D. Valentina, Krajnović M. Dušanka, Miljković R. Branislava, Vezmar Kovačević D. Sandra, Vučićević M. Katarina, Kovačević N. Nada, Petrović D. Silvana, Maksimović A. Zoran, Kundaković D. Tatjana, Drobac M. Milica, Ugrešić D. Nenad, Stepanović-Petrović M. Radica, Savić M. Miroslav, Ilić V. Katarina, Novaković N. Aleksandra, Tomić A. Maja, Leposavić M. Gordana, Arsenović-Ranin M. Nevena, Stojić-Vukanić M. Zorica, Plečaš-Solarović A. Bosiljka, Pešić P. Vesna, Nedeljković S. Miodrag, Milenković T. Marina, Antić Stanković A. Jelena, Parojčić V. Jelena, Ibrić R. Svetlana, Đuriš D. Jelena, Grbić V. Sandra, Đurić R. Zorica, Vujić B. Zorica, Čudina A. Olivera, Bulat L. Zorica, Matović J. Vesna, Antonijević M. Biljana, Vujanović L. Dragana, Đukić M. Mirjana		
Course status: Mandatory common, module: Doctoral academic studies		
Semester: II	Year of studies: I	
ECTS points: 5	Course code: D1034	
Requirements: none		
Course aims: This course aims to enable the participant to: search the scientific literature effectively and thoroughly; perform a critical analysis of publications relevant for his/her study field; upgrade his/her capacities for giving a successful oral presentation in English.		
Course outcomes: By the end of this course participants will be able to: search the scientific literature effectively and thoroughly; perform a critical analysis of publications relevant for his/her study field; apply the principles of making a successful oral presentation in English		
Course contents: Collection of pertinent literature (by use of bibliographic databases, web sites of publishers, general search engines). Preparation of personal databases. Contextual analysis of key publications in a field. Preparation and presentation of the published results.		
Recommended literature: 1. Alley M. The craft of scientific presentations. Critical steps to succeed and critical errors to avoid. Springer-Verlag New York, Inc., 2003. 2. Original scientific papers and review articles in the field of the participant's research activity.		
The total of active learning classes	Lectures: 30	
	Individual research work: 60	
Teaching methods: Study-research work		
Grading system: Seminar: 70 points; written exam: 30 points		


University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES	
Course title: Seminar 3		
Teachers: Ivanović P. Darko, Zečević L. Mira, Malenović M. Anđelija, Stojanović S. Biljana, Miletić Đ. Ivanka, Šobajić S. Slađana, Stanković M. Ivan, Đorđević I. Brižita, Vuleta M. Gordana, Milić R. Jela, Primorac M. Marija, Savić D. Snežana, Vasiljević D. Dragana, Krajišnik R. Danina, Đekić M. Ljiljana, Spasić M. Slavica, Jelić-Ivanović D. Zorana, Spasojević-Kalimanovska V. Vesna, Stojanov D. Marina, Ignjatović D. Svetlana, Topić S. Aleksandra, Dopsaj B. Violeta, Bogavac-Stanojević B. Nataša, Kotur-Stevuljević M. Jelena, Tasić M. Ljiljana, Marinković D. Valentina, Krajnović M. Dušanka, Miljković R. Branislava, Vezmar Kovačević D. Sandra, Vučićević M. Katarina, Kovačević N. Nada, Petrović D. Silvana, Maksimović A. Zoran, Kundaković D. Tatjana, Drobac M. Milica, Ugrešić D. Nenad, Stepanović-Petrović M. Radica, Savić M. Miroslav, Ilić V. Katarina, Novaković N. Aleksandra, Tomić A. Maja, Leposavić M. Gordana, Arsenović-Ranin M. Nevena, Stojić-Vukanić M. Zorica, Plečaš-Solarović A. Bosiljka, Pešić P. Vesna, Nedeljković S. Miodrag, Milenković T. Marina, Antić Stanković A. Jelena, Parojčić V. Jelena, Ibrić R. Svetlana, Đuriš D. Jelena, Grbić V. Sandra, Đurić R. Zorica, Vujić B. Zorica, Čudina A. Olivera, Bulat L. Zorica, Matović J. Vesna, Antonijević M. Biljana, Vujanović L. Dragana, Đukić M. Mirjana		
Course status: Mandatory common, module: Doctoral academic studies		
Semester: III	Year of studies: II	
ECTS points: 5	Course code: D2031	
Requirements: none		
Course aims: This course aims to enable the participant to: search the scientific literature effectively and thoroughly; perform a critical analysis of publications relevant for his/her study field; upgrade his/her capacities for giving a successful oral presentation of results of personal research activities		
Course outcomes: By the end of this course participants will be able to: search the scientific literature effectively and thoroughly; perform a critical analysis of publications relevant for his/her study field; apply the principles of making a successful oral presentation in English		
Course contents: Collection of pertinent literature (by use of bibliographic databases, web sites of publishers, general search engines). Preparation of personal databases. Contextual analysis of key publications in a field. Preparation and presentation of the published results.		
Recommended literature: 1. Alley M. The craft of scientific presentations. Critical steps to succeed and critical errors to avoid. Springer-Verlag New York, Inc., 2003. 2. Original scientific papers and review articles in the field of the participant's research activity.		
The total of active learning classes	Lectures: 30	
	Individual research work: 60	
Teaching methods: Study-research work		
Grading system: Seminar: 70 points; written exam: 30 points		

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES	
Course title: Seminar 4		
Teachers: Ivanović P. Darko, Zečević L. Mira, Malenović M. Anđelija, Stojanović S. Biljana, Miletić Đ. Ivanka, Šobajić S. Slađana, Stanković M. Ivan, Đorđević I. Brižita, Vuleta M. Gordana, Milić R. Jela, Primorac M. Marija, Savić D. Snežana, Vasiljević D. Dragana, Krajišnik R. Danina, Đekić M. Ljiljana, Spasić M. Slavica, Jelić-Ivanović D. Zorana, Spasojević-Kalimanovska V. Vesna, Stojanov D. Marina, Ignjatović D. Svetlana, Topić S. Aleksandra, Dopsaj B. Violeta, Bogavac-Stanojević B. Nataša, Kotur-Stevuljević M. Jelena, Tasić M. Ljiljana, Marinković D. Valentina, Krajnović M. Dušanka, Miljković R. Branislava, Vezmar Kovačević D. Sandra, Vučićević M. Katarina, Kovačević N. Nada, Petrović D. Silvana, Maksimović A. Zoran, Kundaković D. Tatjana, Drobac M. Milica, Ugrešić D. Nenad, Stepanović-Petrović M. Radica, Savić M. Miroslav, Ilić V. Katarina, Novaković N. Aleksandra, Tomić A. Maja, Leposavić M. Gordana, Arsenović-Ranin M. Nevena, Stojić-Vukanić M. Zorica, Plečaš-Solarović A. Bosiljka, Pešić P. Vesna, Nedeljković S. Miodrag, Milenković T. Marina, Antić Stanković A. Jelena, Parojčić V. Jelena, Ibrić R. Svetlana, Đuriš D. Jelena, Grbić V. Sandra, Đurić R. Zorica, Vujić B. Zorica, Čudina A. Olivera, Bulat L. Zorica, Matović J. Vesna, Antonijević M. Biljana, Vujanović L. Dragana, Đukić M. Mirjana		
Course status: Mandatory common, module: Doctoral academic studies		
Semester: IV	Year of studies: II	
ECTS points: 5	Course code: D2032	
Requirements: none		
Course aims: This course aims to enable the participant to: search the scientific literature effectively and thoroughly; perform a critical analysis of publications relevant for his/her study field; upgrade his/her capacities for giving a successful oral presentation of results of personal research activities; prepare publications containing the results obtained in the performed personal investigation		
Course outcomes: By the end of this course participants will be able to: search the scientific literature effectively and thoroughly; perform a critical analysis of publications relevant for his/her study field; apply the principles of making a successful oral presentation and preparing publications containing the personal results		
Course contents: Collection of pertinent literature (by use of bibliographic databases, web sites of publishers, general search engines). Preparation of personal databases. Contextual analysis of key publications in a field. Preparation and oral and written presentation of the personal results.		
Recommended literature: 1. Alley M. The craft of scientific presentations. Critical steps to succeed and critical errors to avoid. Springer-Verlag New York, Inc., 2003. 2. Original scientific papers and review articles in the field of the participant's research activity.		
The total of active learning classes	Lectures: 30	
	Individual research work: 60	
Teaching methods: Study-research work		
Grading system: Seminar: 70 points; written exam: 30 points		

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: Social Pharmacy			
Teachers: Krajnović M. Dušanka, Tasić M. Ljiljana, Marinković D. Valentina			
Course status: Mandatory modules, module: Social Pharmacy and Pharmacy Practice Research			
Semester: I	Year of studies: I		
ECTS points: 10	Course code: ДСФ10М1		
Requirements: none			
Course aims: Introduction to basic principles of bibehavioral aspects of pharmacy and social influences on pharmacy practice. Mastering the research methods of new public-health, social factors that influence the health or incidence of diseases, use of medicines and behaviours associated with it.			
Course outcomes: Application of knowledge from social pharmacy and epidemiology methods for research in social pharmacy. Capability of critical appraisal of data extracted from national and international data base about health and capability of conducting knowledge, attitudes and beliefs study associated with health and illness. Critical appraisal in relation to new public health and right to health.			
Course contents: Conceptual framework of pharmacy and society; concept of community, health and individual background. Professional development of pharmacy, aspects of business and healthcare service (clinical, social and economic perspectives). Social relations and social factors in pharmacy. Medicine-patient-pharmacist. People attitudes toward health and illness. Different kind of behavior towards illness. Theoretical concept of health and the most powerful factors associated with health. National and international data base for health as source of information. Health care system and organizational form of delivering health care. Health care on different levels of prevention and focusing on different population groups (women and children, working population, geriatric population, poor and refugees, people with invalidity). Evidence-based healthcare. Knowledge, attitudes and responsibility in the healthcare system (patient, pharmacist, healthcare worker). Principles of healthcare and health rights. Education for health. New public health and responsibility of pharmacy practice. Competences in different professional activities and specific indicators for evaluation of competences. Systematic communication in pharmacy. Pharmaceutical industry and health. Research methods in social pharmacy. Epidemiological studies- importance, participation and interaction with social pharmacy. Different method for assessment of attitudes, beliefs and behavior. Use of survey questionnaire and interview as tools for collecting data.			
Recommended literature: 1. Donyai Parastou. Social and Cognitive Pharmacy: Theory and Case Studies. London: Pharmaceutical Press; 2012. 2. Paul Bissell, Janine Morgall Traulsen. Sociology and Pharmacy Practice. London: Pharmaceutical Press; 2005. 3. N Rickles & N Weirtheimer (eds). Social and Behavioural Aspects of Pharmacy Practice. New York: Haworth Press; 2009. 4. Harding G, Nettleton S, Taylor K. Social Pharmacy: Innovation and Development. London: The Pharmaceutical Press; 1994.			
The total of active learning classes	Lectures: 60		
	Individual research work: 60		
Teaching methods: Ex cathedra lectures, practical classes (case studies, workshops, panel discussions, homework, on-line forum and professional practice); Evaluation of Teaching: written-final test and practical exam-verbally.			
Grading system: Final exam (40 points) practical training)(60 points)			


University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: Pharmaceutical administration			
Teachers: Ljiljana M. Tasić, Valentina D. Marinković, Dušanka M. Krajnović			
Course status: Mandatory modules, module: Social Pharmacy and Pharmacy Practice Research			
Semester: I	Year of studies: I		
ECTS points: 5	Course code: ДСФ10М2		
Requirements: none			
Course aims: Aquiring knoeleage about pharmaceutical administration and regulatory science. Aquiring method of analysis about pharmaceutical and healthcare systems.			
Course outcomes: Implementation of knowleage about pharmaceutical administration. Ability of critical evalution of regulatory data in pharmacy and healthcare.			
Course contents: Definition and development of regulatory science. Multidisciplinary approach in healthcare, health policy and drug policy. Development strategy and drug polcy management. Health legislation; standards, systems and susystems in pharmaceutical care. Elements and comparative studies pharmaceutical legislation in Sebia, EU, USA; role of pharma industry in drug policy. Internationa pharmaceutical market and medical devicees. Patent legislation and data excluivity (TRIPS agreement, Bolar declaration). Innovative and generic drugs. Political, socuial, economic influence in healthcare system regulation.; medical reimbursement systems and patient law. Health economy, pharmacoeconomy principles. Basic methods od social systems- conceptual and context studes (qualititve studies).			
Recommended literature: 1 Hedley R. Supply chain manahgement in the drug industry- Delivery Patient Value for Pharmaceuticals and Biologics. New Jersey: John Wiley & Sons Inc 2011. 2.Tasić Lj, Marinković V. Kvalitet u farmaciji -od teorije do prakse. Beograd: Farmaceutski fakultet, 2012. 3. Tasić Lj. Farmaceutski menadžment i marketing. Beograd: Placebo; 2007. 4. Ilić-Stojanović S., Jovanović S., Đorđević S, Tehnološki aspekt zaštite intelektualne svojine za farmaceutske proizvode i postupke. Grafolik: Tehnološki fakultet Leskovac 2005. 5. Bootman J., Townsend R, McGhan W. Principles of Pharmacoeconomics 3nd ed Cincinnati: Harrvey Whitney books company. 2005.			
The total of active learning classes	Lectures: 30		
	Individual research work: 30		
Teaching methods: Lectures (ex catedra) practice: case studies, workshops, panel discustion, home work, on-line forum . Evaluation : written exam- final test and oral pratical exam.			
Grading system: Written exam: 40			


University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: Pharmacy Practice			
Teachers: Tasic M. Ljiljana, Krajnovic M. Dusanka, Marinkovic D. Valentina			
Course status: Mandatory modules, module: Social Pharmacy and Pharmacy Practice Research			
Semester: II and III		Year of studies: I and II	
ECTS points: 25		Course code: ДСФ10М3	
Requirements: no			
Course aims: Acquiring knowledge of pharmacy practice of all levels of the health system and the adoption of the principles of research in pharmacy practice. Mastering the methods and tools for analyzing and evaluating the outcomes of pharmaceutical services/intervention. Mastering of the analysis of pharmaceutical systems in the integration of sub-systems and health programs. Creation of the drug list and drug use evaluation.			
Course outcomes: Know and use the scientific knowledge of pharmacy practice research of all levels of the health system. Students will be able to critically analyze health technologies which are used in pharmacy practice as well as being actively involved in the procurement and usage of health technology. Students will be able to make decisions concerning the management of drug safety and the use of drugs. Student will be able to independently design a scientific study and the methodology in the field of pharmacy practice			
Course contents: Health technology assessment and health technology . Scientific review system - Donabedian 's philosophy (structure, process and outcome) of pharmacist interventions in the development of professional practice in the delivery of pharmaceutical care (FZZ). Methods for pharmacy practice research (qualitative and quantitative). Evaluation FZZ to outcomes - clinical, economic and humanistic. FZZ in chronic patients, specific populations. Self-medication. Pharmacist intervention and patient safety. Standards and Quality Assurance of pharmaceutical services. Delivery of clinical services for disease prevention; research and reporting on public health. Pharmacy -based evidence. Commitment to patients' expectations (social marketing). Studies of drug use.			
Recommended literature: 1. Winfield AJ. Pharmaceutical Practice. 3th Ed. Philadelphia: Elsevier Health Science; 2004. 2. Smith MC, Wertheimer AI. Social and behavioral aspects of pharmaceutical care. New York: Pharmaceutical Products Press; 1996. 3. Taylor K, Harding G. Pharmacy Practice. New York: Taylor & Francis; 2001. 4. Kayne SB. Pharmacy business management. New York: Pharmaceutical Products Press; 2005. 5. Remington: Science nad Practice of Pharmacy. 21st Ed. Philadelphia:Lippincott Williams and Wilkins; 2005.			
The total of active learning classes		Lectures: 150	
		Individual research work: 150	
Teaching methods: Ex cathedra, practical work (case studies, workshop, panel discussion, homework, assignment)			
Grading system: final exam (150) and practical exam - oral (150)			


University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES	
Course title: Methodology in social pharmacy and pharmacy practice		
Teachers: Ljiljana M. Tasić, Valentina D. Marinković, Dragana M. Lakić, Dušanka M. Krajnović		
Course status: elective, module: Social Pharmacy and Pharmacy Practice Research		
Semester: II	Year of studies: I	
ECTS points: 5	Course code: ДСФ1И1	
Requirements: no		
Course aims: Knowledge in pharmacoepidemiology and pharmacoconomics. Application of the methods in pharmacoepidemiology and pharmaco-economic analysis.		
Course outcomes: Applying knowledge of pharmacoepidemiology and pharmacoconomics. Ability to critically evaluate information in the field of pharmacoepidemiology and pharmacoconomics. Knowledge and application of pharmacoepidemiological and pharmaco-economic methods.		
Course contents: Theoretical - Types of studies dealig with drug use, statig a hypothesis, sampling. Basic principles of pharmacoepidemiological methods of collection, processing and analysis of data related to the use of drugs and other medical products (rational, frequently prescribing medicines and treatment outcome). Methods for detection of adverse and beneficial effects of drugs, including spontaneous reporting, ad- hoc epidemiological studies and the use of databases. Design Study. Cross-sectional studies, observational studies (cohort and case - control studies) and clinical studies. Studies of the drug use. Bias. Perspective in pharmaco-economic studies, economic and humanistic evaluation methods. Cost of illness (COI), cost minimization analysis (CMA) , cost-effectiveness analysis (CEA), cost-benefit analysis (CBA) , cost-utility analysis (CUA). Practical - Safety Update Report. Calculating the risk of adverse drug reactions. Critical analysis of studies on adverse drug reaction/medical device Calculating the cost of treatment. Application of CMA, CEA, CBA and CUA.		
Recommended literature: 1. Strom BL. Pharmacoepidemiology. 4th ed. Chichester: John Wiley & Sons; 2005 2. Hartzema AG , Porta M, Tilson HH (editors). Pharmacoepidemiology. An Introduction. 3th ed. Cincinnati: Harvey Whitney Books Company; 1998 3. Gledović Z, Janković S, Jarebinski M, Marković-Denić Lj, Pekmezović T, Šipetić-Grujičić S, Vlajinac H. U: Vlajinac H, Jarebinski M (urednici). Epidemiologija. Beograd: Medicinski fakultet Univerziteta u Beogradu, 2006 4. Drummond M, OBrien B, Stoddart G, Torrance G. Methods for the Economic Evaluation of Health Care Programmes. 2nd ed. Oxford: Oxford University Press; 1997 5. Berger ML, Bingefors K, Hedblom EC, Pashos CL, Torrance GW, Smith MD. Troškovi, kvalitet i ishodi zdravstvene zaštite – ISPOR knjiga termina. ISPOR 2003, prevod na srpski, Beograd: ISPOR Serbian chapter; 2012.		
The total of active learning classes	Lectures: 30	
	Individual research work: 30	
Teaching methods: Ex cathedra, practical work (case studies, workshop, panel discussion, homework, assignment)		
Grading system: final exam (40) and practical exam - oral (60)		

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: Integrated communication in pharmacy practice			
Teachers: Dušanka M. Krajnović, Ljiljana M. Tasić, Vojin B. Rakić			
Course status: elective, module: Social Pharmacy and Pharmacy Practice Research			
Semester: II	Year of studies: I		
ECTS points: 5	Course code: ДСФ1И2		
Requirements: none			
Course aims: To acquire knowledge on integrated communications in pharmaceutical practice (scientific public, general public, health care institutions and manufacturers/ suppliers). Introduction to communication styles and information management. Survey on the phenomenon of health information, perception and communication.			
Course outcomes: To apply knowledge on integrated communications in pharmaceutical practice. Introduction and applying of various communication styles and management of information in research. Training for research, analytical thinking and evaluation of various phenomena related to different information, communication and perception.			
Course contents: Information and communication. Internal and external communication. Integrated systems of communication in pharmacy practice. Notion and significance of integrated communication for modern society (three aspects: patients, health system, manufacturers/suppliers). Development of effective integrated communications. Integrated marketing communication. Types of information (health information, social information, drugs and medical devices, classifications, codifications) and different approaches in research. Types of communication (verbal, non-verbal and written verbal communication). Communication channels (mass media, virtual communication, public health sector). Business culture (ethical, cultural, social aspects and pharmaceutical culture). Management of information and communication quality (international and national standards of good pharmacy practices, indicators for monitoring and evaluation). Specific methods, processes and barriers in communication with specific groups (women, children, adolescents, older patients, specific health problems, rare diseases, HIV etc.). Outcomes measurement of integrated communications in pharmacy practice.			
Recommended literature: 1. Tasić LJ, Krajnović D, Jocić D, Jović S. Communication in Pharmacy Practice. Belgrade :Faculty of Pharmacy University of Belgrade; 2011. 2. Winfield AJ, Richards RME. (editors). Pharmaceutical Practice. 3rd Ed. Churchill Livingstone; 2004 3. Millares M. Applied Drug Information: Strategies for Information Management, Vancouver: Applied Therapeutics Inc.; 1998. 4. Tasić LJ. Pharmaceutical management and marketing. Placebo: Belgrade, 2007. 5. Beardsley SR, Kimberlin LC, Tindall NW. Communication Skills in Pharmacy Practice. 5th Ed. Baltimore: Lippincott Williams & Wilkins; 2008.			
The total of active learning classes	Lectures: 30		
	Individual research work: 30		
Teaching methods: Ex cathedra lectures, practical classes (case studies, workshops, panel discussions, homework, on-line forum and professional practice); Evaluation of Teaching: written-final test and practical exam-verbally.			
Grading system: Final exam (40 points) practical training)(60 points)			

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: Biomedical ethics			
Teachers: Dušanka M. Krajnović, Ljiljana M. Tasić, Vojin B. Rakić			
Course status: elective, module: Social Pharmacy and Pharmacy Practice Research			
Semester: II	Year of studies: I		
ECTS points: 5	Course code: ДСФ1ИЗ		
Requirements: none			
Course aims: Acquiring knowledge about biomedical ethics and application of normative ethical principles in practical situations in pharmaceutical practice. Mastering the methods and tools of ethical analysis and asstimating the respect of moral values, duties and rights in providing health care and clinical practice.			
Course outcomes: Application knowlwdge in areas clinical ethical consultation. The ability to critically evaluate ethical problems and moral dilemmas, with a model of ethical analysis. The abillity of moral judgement and clinical ethical analysis.			
Course contents: The position and role of ethics in biomedical practice and biomedical sciences. Normative ethical principles. Ethical reasoning in respecting the moral values and patient rights in providing health care and clinical practice. Ethical normatives: types, genesis and structure. The beginning and development of health ethics viewed according to ethical normative. The elements of health ethos in the oaths doctors, pharmacists and other healthcare employees. Not following the codified principles of the ethical normative. The ethical questions connected to public health. The ethical codex of public health. The roll of human rights in public health. The European bioethical agreement whose aim is protection of human rights and dignity in relation to medical research and new health technologies. Bioethical declarations and basic bioethical principles in clinical practice and clinical research. Clinical ethical consultations. Mistakes in health care- moral, professional and legal in health responsibility. Health and pharmaceutical market- behavior of stakeholders and professional ethics.			
Recommended literature: 1. Veatch MR, Haddad MA. Case Studies in Pharmacy Ethics. New York: Oxford University Press; 2008. 2. Parojčić D. The development of ethics in pharmacy: from theory to contemporary practice. Konstisi: Belgrade; 2006. 3. DeGrazia D, Mappes T, Ballard J. Biomedical ethics. McGraw- Hill education; 2010. 4. Parojčić D. Ethics in pharmacy. In: Nikolin et al. Gallery pharmaceutical skills. Belgrade: Placebo; 2005, 301-347. 5. Frkovic A. Bioethics in clinical practice. Pergamena: Zagreb; 2006.			
The total of active learning classes	Lectures: 30		
	Individual research work: 30		
Teaching methods: Ex cathedra lectures, practical classes (case studies, workshops, panel discussions, homework, on-line forum and seminar).			
Grading system: test paper(40 points) practical exam- verbally (60 points)			

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: History of Pharmacy			
Teachers: Dušanka M. Krajnović			
Course status: elective, module: Social Pharmacy and Pharmacy Practice Research			
Semester: II	Year of studies: I		
ECTS points: 5	Course code: ДСФ1И4		
Requirements: none			
Course aims: To acquire knowledge in the history of health culture and turning points of the evolutionary development of pharmaceutical science and pharmaceutical profession; To overmaster museological and documentative methods in conceptual and contextual analysis.			
Course outcomes: To apply knowledge on the history of A8 museology and preservation of national heritage; To develop the ability of searching and evaluation of historical sources and museum displays in pharmacy and the history of health culture.			
Course contents: Introduction to the history of science with special attention on the history of health culture and the history of pharmacy. Role and significance of pharmacy science since its founding till nowadays. Evolution of pharmaceutical profession. Collaboration with physicians and professional detaching (from physicians). The Edict of Salerno. Introduction to bibliographic research, bibliographic data bases important for pharmacy as well as the methods and ways of searching: profiles and terminology of research. Basis of museology and heritage preservation. Collecting museum displays, preservation and evaluation of collecting funds, depoes and documentation. Museums of pharmacy and medicine. General history of pharmacy. National history of pharmacy. Development of pharmaceutical deontology on the national and regional level. Development of apothecaries and apothecary trade in Serbia and Europe. Development of measurement systems and weights. Drug concept in the history and evolution of certain therapeutic groups of drugs. Development of professional literature and pharmacopoeias. Industrialisation in pharmacy, introduction of machine drug manufacturing and pharmaceutical industry development. Evolution of national, regional and international ethical and law normatives regarding apothecary trade. National, regional and international associations of pharmacists and their influence on the development of pharmaceutical profession.			
Recommended literature: 1. Sonnedecker G. Kremers and Urdang's History of Pharmacy. 4th Ed. Philadelphia: Lippincott; 1976. 2. Lafont O. ed. Dictionnaire d'histoire de la pharmacie, Des origines à la fin du XIXe siècle. Paris: Pharmathèmes; 2003. 3. Helmstaedter A, Hermann J, Wolf E. Leitfaden der Pharmaziegeschichte. Govi-Verlag: Eschborn; 2001. 4. Schmitz R. Geschichte der Pharmazie, band I, Govi-Verlag:Eschborn; 1998. 5. Jonsen RA. A Short History of Medical Ethics. New York: Oxford University Press; 2000.			
The total of active learning classes	Lectures: 30		
	Individual research work: 30		
Teaching methods: Ex cathedra lectures, practical classes (workshops, research and discussions of secondary and tertiary sources at History of Pharmacy Museum); homeworks. Evaluation of teaching: written-final test and practical exam-verbally.			
Grading system: written-final test (40 points) practical exam-verbally (60 points)			

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES	
Course title: Medication management and rational use of medicines		
Teachers: Ljiljana M. Tasić, Vezmar Kovačević D. Sandra		
Course status: elective, module: Social Pharmacy and Pharmacy Practice Research		
Semester: III	Year of studies: II	
ECTS points: 5	Course code: ДСФ2И1	
Requirements: no		
Course aims: Knowledge about the health, social and economic aspects of drug management and rational drug use. Understanding the role of pharmacists in promoting rational use of medicines.		
Course outcomes: The application of knowledge in the effective management of medicines and promotions of rational drug use in primary, secondary and tertiary health care institutions. Ability to critically evaluate and improve the drug management and rational use of medicines.		
Course contents: Essential medicines. Drug List, clinical guidelines, treatment protocols. Quantification of the drugs , the consumption and the morbidity method. The reduction of treatment costs using the VEN system (Vital, Essential and Non- essential drugs), ABC analysis and therapeutic categories analysis. Principles of procurement of drugs and medical devices for public health institutions and impact analysis. Cycle management of drugs (logistics and Supply Chain health system). The roles and responsibilities of the health care team in the management of drug supply. Pharmacovigilance. Planning , implementation and monitoring of the drug use. Clinical, social and economic aspects and outcomes. Use of drugs in an individual patient, the population, institutions and society . The role of pharmacists in rational use of medicines .		
Recommended literature: 1. Hedley Rees. Supply chain management in the drug industry - Delivery Patient Value for Pharmaceutical and Biologics. New Jersey: John Wiley & Sons; 2011. 2. Тасић Љ. Фармацеутски менаџмент и маркетинг. Плацебо: Београд; 2007. 3. Buchbinder S, Shanks NH. Introduction To Health Care Management. 2nd Ed. Burlington: Jones & Bartlett Learning; 2011. 4. World Health Organization. Managing Drug Supply. 2nd ed. Connecticut: Kumarian Press; 1997. 5. Bootman J, Townsend R, McGhan W. Principles of Pharmacoeconomics. 3rd ed. Cincinnati: Harvey Whitney Books Company; 2005.		
The total of active learning classes	Lectures: 30	
	Individual research work: 30	
Teaching methods: Ex cathedra, practical work (case studies, workshop, panel discussion, homework, assignment)		
Grading system: final exam (40) and practical exam - oral (60)		

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: Selected chapter of pharmacotherapy			
Teachers: Tomić A. Maja			
Course status: elective, module: Social Pharmacy and Pharmacy Practice Research			
Semester: III	Year of studies: II		
ECTS points: 5	Course code: ДСФ2И2		
Requirements: no			
Course aims: Acquiring knowledge about the effectiveness, safety about medicines, interactions and adverse drug reactions in the treatment of diseases of the cardiovascular system, central nervous system, endocrine and the musculo-skeletal system. Understanding the importance of reproductive health and disease prevention in women.			
Course outcomes: Applying knowledge of selected fields of pharmacotherapy: cardiovascular diseases, central nervous system, the endocrine and the musculo-skeletal system. Counseling of women about the rational drugs use and disease prevention. Critical evaluation of prescribed pharmacotherapy in patients who suffering from diseases of the cardiovascular system, central nervous system, the endocrine and the musculoskeletal system.			
Course contents: Pharmacotherapy guidelines for the drug use. Frugs for the first and second choice, dosage, pharmacological action, indication, contraindication, interactions and adverse drug reactions of drugs used in the treatment of central nervous system, cardio vascular, endocrine, and musculo - skeletal system. The role of laboratory parameters in assessing the efficacy and safety of the therapy. Specificity of the population of women in reproductive age. Hormonal therapy and reproductive health; hormonal therapy and endocrine diseases. A critical evaluation of clinical studies on the efficacy and safety of drugs. The role of pharmacists in the development of therapeutic guidelines. Counseling patients about the use of medicinal products, the importance of adherence			
Recommended literature: 1. DiPiro J, Talbert RL, Yee G, Matzke G, Wells B, Posey ML. Pharmacotherapy: A Pathophysiologic Approach. 8th Ed. McGraw-Hill Medical; 2011. 2. Brunton L, Chabner B, Knollman B. Goodman and Gilman's The Pharmacological Basis of Therapeutics. 12th Ed. McGraw-Hill Professional; 2010. 3. Schwinghammer T, Koehler J. Pharmacotherapy Casebook: A Patient - Focused Approach. 8th Ed., McGraw-Hill Medical; 2011. 4. Угрешкић Н, Степановић-Петровић Р, Савић М. Фармакотерапија за фармацеуте. 1. издање. Београд: Фармацеутски факултет; 2011.			
The total of active learning classes	Lectures: 30		
	Individual research work: 30		
Teaching methods: Ex cathedra, practical work (case studies, workshop, panel discussion, homework, assignment)			
Grading system: final exam (40) and practical exam - oral (60)			

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: Pharmaceutical and Healthcare Quality systems			
Teachers: Ljiljana M. Tasić, Valentina D. Marinković			
Course status: elective, module: Social Pharmacy and Pharmacy Practice Research			
Semester: III	Year of studies: II		
ECTS points: 5	Course code: ДСФ2ИЗ		
Requirements: none			
Course aims: Aquiring knoeleage about quality systems concepts. Introduction of basic tools and methods in Pharmaceutical and Healthcare quality systems.			
Course outcomes: Implementation of knowleage about quali management system (QMS) and integrated management system (IMS). Ability of critical evalution of IMS models and continiouse improvement of quaiety performance.			
Course contents: Quality philosophy, systems subsystems in pharmaceutical lifecycle. Pharmaceutical Quality system. Standardized quality management systems (SMS)-ISO 9001, ISO 22000, ISO 17025, ISO 13845 . Integrated management system about quality, ecology, health & safety. QMS in health industry - Donabedian philosophy. Certification and accreditation in pharmacy and healthcare. Good practices in pharmacy. Pharmaceutical care; analysis of corelation: structure-process-outcome; evaluation and quality assurance of pharmaceutical and healthcare services; development of pharmacy services (project, models), quality performance indicators. New appoches in quality management and business excellence/ clinical excellence)			
Recommended literature: 1.Tasić Lj, Marinković V. Kvalitet u farmaciji -od teorije do prakse. Beograd: Farmaceutski fakultet, 2012. 2. Tasić Lj. Farmaceutski menadžment i marketing. Beograd: Placebo; 2007. 3. Lee TH, Shiba S, Wood Rc. Integrated management systems- A Practical Approach to transforming organisations. New York: John Wiley & Sons Inc 1999. 4. Hedley R. Supply chain manahgement in the drug industry- Delivery Patient Value for Pharmaceuticals and Biologics. New Jersey: John Wiley & Sons Inc 2011. 5. Filipović J. Menadžment sistema kvaliteta. Beograd FON, 2008.			
The total of active learning classes	Lectures: 30		
	Individual research work: 30		
Teaching methods: Lectures (ex catedra) practice: case studies, workshops, panel discustion, home work, on-line forum . Evaluation : written exam- final test and oral pratical exam.			
Grading system: Written exam: 40			

University of Belgrade Faculty of Pharmacy	DOCTORAL ACADEMIC STUDIES		
Course title: Health outcomes and modelling research			
Teachers: Ljiljana M. Tasić, Valentina D. Marinković, Dragana M. Lakić, Dušanka M. Krajnović			
Course status: elective, module: Social Pharmacy and Pharmacy Practice Research			
Semester: III	Year of studies: II		
ECTS points: 5	Course code: ДСФ2И4		
Requirements: no			
Course aims: The acquisition of knowledge in the field of health outcomes research. Application of the modelling methods.			
Course outcomes: The use of knowledge in health outcomes research. Ability to critically evaluate information in the field of health outcomes research. Knowledge and application of modeling.			
Course contents: Theoretical - Outcomes - clinical, social (humanistic) and economic outcomes. Outcome indicators and design studis (perspective: health policy, and health care programs; patients; health care workers). Studies based on humanistic outcomes - patient related outcome (PRO) and health related quality of lifequestionnaires. Health related quality of life (generic and specific questionnaires), adaptation and validation of the questionnaire. Basic psychometric properties of the questionnaire (validity, reliability, sensitivity). Preferences and preference measurement. Hypotheses and modelling. Modelling systems and subsystems and impact analysis, evaluation of the strength and performance of the system. Modelling in pharmacoepidemiology and pharmacoconomics. Modelling and simulation (Monte Carlo simulation, deterministic analysis, Markov model, stochastic and probabilistic analysis). Practical - The use of questionnaires for quality of life. Content analysis and categorization of the questionnaire. Linguistic adaptation of the questionnaire. Calculation and interpretation of assessment results the basic characteristics of the questionnaire. Development and application of various models. Testing of the model. The effect of changes in the results of base-case analysis. Robustness and sensitivity analysis.			
Recommended literature: 1. Strom BL. Pharmacoepidemiology. 4th ed. Chichester: John Wiley & Sons; 2005 2. Drummond M, OBrien B, Stoddart G, Torance G. Methods for the Economic Evaluation of Health Care Programmes. 2nd ed. Oxford: Oxford University Press; 1997 3. Bootman J, Townsend R, McGhan W. Principles of Pharmacoconomics. 3rd ed. Cincinnati: Harvey Whitney Books Company; 2005			
The total of active learning classes	Lectures: 30		
	Individual research work: 30		
Teaching methods: Ex cathedra, practical work (case studies, workshop, panel discussion, homework, assignment)			
Grading system: final exam (40) and practical exam - oral (60)			