

COURSE DESCRIPTION CARD

Course name	Fundamental skills of a scientist's workbench				
Course type	obligatory	Course code	---	ECTS credits	2
Forms and number of hours	lecture: 20h	Scientific discipline	all	Semester	2
Course objectives	An adept to the world of science should acquire a certain set of skills during doctoral studies that will allow an already mature scientist to cope with everything that the world of science expects from him/ her. Most of these skills are usually passed on indirectly by the promoter, but, unfortunately, mastering them depends not only on the promoter's knowledge, but also on cultural and personal factors, and the ability to pass them on. The course systematically reviews what every scientist should know and be able to do.				
Course content	<ol style="list-style-type: none"> 1. What is research? The working of scientific enterprise. 2. How to identify a good research problem? 3. Career planning 4. Presentation in front of an audience 5. Writing research articles 6. Peer review 7. Guiding students, running a lab, managing projects 8. Marketing your skills: Job hunt 9. Time management, motivation, coping with stress, balancing work and personal life 10. Ethics in science 				
Teaching methods	Lecture with discussions with the audience, classes				
Assessment method	Presence, term project				
Symbol of learning outcome	Learning outcomes		Reference to the learning outcomes for the field of study for the 8th level of Polish Qualification Framework (PRK)	Methods of assessing the learning outcomes	
LO1	PhD student: knows and understands the methodology of scientific research		SD_W3	Discussions, project	
LO2	knows and understands the principles of disseminating the results of scientific activity, also in the open access mode		SD_W4	Discussions, project	
LO3	knows and understands the economic, legal, ethical and other important conditions of scientific activity		SD_W6	Discussions, project	
LO4	can define the purpose and subject of research, formulate a research hypothesis, develop research methods, techniques and tools and use them creatively, make conclusions on the basis of		SD_U1	Discussions, project	

	the results of scientific research		
LO5	can plan and implement individual and team research or creative projects, also in an international environment	SD_U8	Discussions, project
LO6	can independently plan and act for his/her own development as well as inspire and organize the development of other people.	SD_U9	Discussions, project

Student workload (in hours)	
Lecture	20
Consultations	1
The unassisted student work	30
Implementation of project tasks and preparation for and participation in exams/tests	0
Total	51
ECTS credits	2

Basic references	<ol style="list-style-type: none"> 1. Phil Agre. "Networking on the Network: A Guide to Professional Skills for Ph.D. Students." Unpublished paper, available electronically through WWW at http://www-personal.umich.edu/~csandvig/698F15/readings/Agre--ch3--excerpts.pdf 2. Robert A. Baron. "Research Grants: A Practical Guide." In: Mark P. Zanna & John M. Darley (editors), "The Compleat Academic: A Practical Guide for the Beginning Social Scientist," Chapter 7, pages 151-169, New York: Random House, 1987 3. Alan Bundy, Ben du Boulay, Jim Howe & Gordon Plotkin. "How to Get a Ph.D. in AI." In Tim O'Shea & Marc Eisenstadt (editors) "Artificial Intelligence: Tools, Techniques, and Applications," Chapter 5, pages 139-154, Cambridge: Harper & Row Publishers, 1984 4. Juan Miguel Campanario. "Have Referees Rejected Some of the Most-Cited Articles of All Times?" Journal of the American Society for Information Science, 47(4):302-310, 1996 5. Marie desJardins. "How to Succeed in Graduate School." Unpublished paper, available electronically through WWW at http://www.ai.sri.com/~marie/papers/advice-summary 6. Richard Hamming. "You and Your Research." Transcription of the Bell Communications Research Colloquium Seminar, 7 March 1986, available electronically through WWW at http://www.cs.virginia.edu/~robins/YouAndYourResearch.pdf 7. J. Paul Peter & Jerry C. Olson. "Is Science Marketing?" Journal of Marketing, 47, 111-125, 1983 8. Harilaos N. Psarftis. "Review Standards for OR/MS Papers: How To Make an Imperfect Process Less Imperfect." OR/MS Today, pages 54-57, June 1994 9. Bruce D. Shriver. "The Benefits of Quality Refereeing." IEEE Computer, pages 10-16, April 1990
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	<ol style="list-style-type: none">10. Alan Jay Smith. "The Task of the Referee." IEEE Computer, pages 65-71, April 199011. Ivan Sutherland, "Technology and Courage." Available electronically through WWW http://cseweb.ucsd.edu/~wgg/sml_i_ps-1.pdf12. Keith Steward Thomson. "Scientific Publishing: An Embarrassment of Riches." American Scientist, 82, 508-511, 199413. Raul E. Valdes-Perez, "Personal Recollections from 15 years of Monthly Meetings." In Essays in Honor of Herbert Simon, Elisabeth Augier and James G. March (eds.), MIT Press, 2002, Available electronically through WWW http://web.cs.dal.ca/~eem/gradResources/HerbertSimon.pdf14. Mark P. Zanna & John M. Darley. "Everything You Always Wanted to Know About Research but Were Afraid to Ask (Your Advisor)." In: Mark P. Zanna & John M. Darley (editors), "The Compleat Academic: A Practical Guide for the Beginning Social Scientist," Chapter 5, pages 115-137, New York: Random House, 1987
Supplementary references	
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