



## RTU Course "Master Thesis"

## 14A24 Department of Chemical Technology of Biologically Active Compounds

**General data**

Code	KOS002
Course title	Master Thesis
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Post-graduate Studies
Course type	Academic
Field of study	Chemistry and Chemical Technology
Responsible instructor	Māra Jure
Academic staff	Māris Turks Ērika Bizdēna Aigars Jirgensons Edgars Sūna
Volume of the course: parts and credits points	1 part, 20.0 Credit Points, 30.0 ECTS credits
Language of instruction	LV, EN
Annotation	Independent theoretical part (Introduction, Literature review on theme) and experimental investigation, carried out in order to solve particular scientific problem, with finalization of research results for publication in scientific journal (Results, Experimental part, Conclusions). Elaboration of methods of synthesis and analysis of complicated organic compounds. Purification and analysis of substances; application of modern methods of analysis for establishing of chemical structure. Coherence of structure-activity and structure-properties relationships. Scaling of methods of synthesis for industry needs.
Goals and objectives of the course in terms of competences and skills	Proficiency of independent analyzes of literature data and suggestions for solutions of problem. Capability to carry out complicated synthesis and analysis of organic compounds. Proficiency to elaborate new and to improve known methods of synthesis and analysis. Skills to work with necessary experimental equipment, capability to carry out experiments and to assess validity of obtained data independently. Capability of professional assessment of results, to accomplish conclusions, to suggest perspectives of further development of investigations. Proficiency to format Thesis according requirements, to prepare material for publication, to present it publicly and to defend Thesis with certainty.
Structure and tasks of independent studies	Practical elaboration and writing of Master's Thesis with following structure: Introduction, Literature review, Results, Experimental part, Conclusions, List of literature. Preparation of presentation and defense of Thesis.
Recommended literature	1) RTU, Materiālzinātnes un lietišķās ķīmijas fakultāte. Norādījumi studiju noslēguma darba noformēšanai. Sastādītāja M. Jure. Rīga: RTU izdevniecība, 2003. 16 lpp. 2) ACS Style Guide. ACS Publication. 3rd ed. 2006. 448 p. 3) R. A. Day, B. Gastel. How to Write and Publish a Scientific Paper. 6th ed. Greenwood Press, 2006. 320 p. 4) H. F. Ebel, C. Bliefert, W. E. Russey. The art of scientific writing: From Student Reports to Professional Publications in Chemistry and Related Fields. 2nd ed. Wiley-VCH, 2004. 608 p.
Course prerequisites	Bachelor degree in chemistry or chemical technology

**Course outline**

Theme	Hours
Introduction	5
Literature review	100
Results	80
Experimental part	600
Conclusions	10
Presentation	5

**Learning outcomes and assessment**

Learning outcomes	Assessment methods
Proficiency of literature data analysis and competence to propose solutions of problem.	Positive assessment of literature review of Master's Thesis.
Practical skills to carry out synthesis and analysis of complicated organic compounds, proficiency to elaborate and to improve methods of synthesis and analysis, to work out technological schemes of synthesis, to perform scaling.	Positive assessment of results and experimental part of Master's Thesis.
Ability to formulate the aim of investigations, to propose ways for solution of problems, proficiency to carry out independent investigations, to analyze and to assess results. Capability to carry out research on synthesis and analysis of organic compounds and to prepare corresponding publication.	Positive assessment of literature review, results, experimental part and conclusions of Master's Thesis.
Proficiency to prepare and to format Master's Thesis according to requirements, to present and to defend publicly and with certainty results of research.	Positive assessment of defense of Master's Thesis.

**Study subject structure**

Part	CP	Hours per Week			Tests		
		Lectures	Practical	Lab.	Test	Exam	Work
1.	20.0	0.0	0.0	0.0			*