SYLLABUS

1. Information regarding the programme

1.1 Higher education institution	**Babeș-Bolyai University of Cluj-Napoca**
1.2 Faculty	**Faculty of Mathematics and Computer Science**
1.3 Department	**Doctoral School in Mathematics and Computer Science**
1.4 Field of study	**Mathematics**
1.5 Study cycle	**Doctoral studies**
1.6 Study programme	**TRAINING PROGRAM BASED ON ADVANCED ACADEMIC STUDIES**

2. Information regarding the discipline

2.1 Name of the discipline				**Academic ethics and integrity. General methods of research and methodology of writing scientific papers**			
2.2 Course coordinator				**Assoc. Prof. Teodora Cătinaș**			
2.3 Seminar coordinator				**Assoc. Prof. Teodora Cătinaș**			
2.4. Year of study	**1**	2.5 Semester	**1**	2.6. Type of evaluation	**E**	2.7 Type of discipline	**Compulsory**

3. Total estimated time (hours/semester of didactic activities)

3.1 Hours per week	3	Of which: 3.2 course	2	3.3 seminar/laboratory	1 sem
3.4 Total hours in the curriculum	36	Of which: 3.5 course	24	3.6 seminar/laboratory	12
Time allotment:					hours
Learning using manual, course support, bibliography, course notes					50
Additional documentation (in libraries, on electronic platforms, field documentation)					64
Preparation for seminars/labs, homework, papers, portfolios and essays					70
Tutorship					28
Evaluations					2
Other activities:					

3.7 Total individual study hours	214
3.8 Total hours per semester	250
3.9 Number of ECTS credits	10

4. Prerequisites (if necessary)

4.1. curriculum	
4.2. competencies	

5. Conditions (if necessary)

5.1. for the course	
5.2. for the seminar /lab activities	Laboratory with computers

6. Specific competencies acquired

Professional competencies	• C1.1: Identifications of notions, descriptions of theories and use of the specific language • C3.1 Description of concepts, theory and models used in application domain • C4.1 Defining basic concepts, theory and mathematical models • C4.5 Embedding formal models in applications from various areas • C5.3: Construction and development of logic proofs for some mathematical results, with identification of hypothesis and conclusions
Transversal competencies	• CT1 Application of efficient and organized work rules, of responsible attitudes towards the didactic-scientific domain, to creatively value one's own potential, with the respect towards the principles and norms of professional etic. • CT2 Efficient progress of group activities and development of communications skills and collaboration • CT3 Use of efficient methods and techniques to learn, inform, research and develop the abilities to value the knowledge, to adapt to requirements of a dynamic society and to communicate in Romanian language and in a language of international circulation.

7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	• to develop the abilities to write a scientific paper, a didactical paper and a Ph.D. thesis.
7.2 Specific objective of the discipline	• to develop the abilities to use scientific databases • to develop the abilities to review a research paper from Mathematics and to be able to appreciate its scientific value • to develop the abilities to work with mathematical tools in research field • to develop the abilities of exposing and presenting oral or in writing some mathematical ideas and concepts.

8. Content

8.1 Course	**Teaching methods**	**Remarks**
1. Documentation for being able of writing a research paper or a Ph.D. thesis. Presentation of the most important international publishing houses (Elsevier, Springer, SIAM, etc.) Presentation of the most important mathematical journals from Romania and aboard.	Exposure, description, explanation, dialogue.	
2. Presentation of the most important mathematical databases (Zentralblatt für Mathematik (zbMATH) (https://zbmath.org/), Web of Science (Clarivate) (https://webofknowledge.com/).	Exposure, description, explanation, dialogue.	
3. Mathematics Subject Classification. The major mathematical reviewing databases: Mathematical Reviews and Zentralblatt MATH.	Exposure, description, explanation, dialogue.	

Presentation of Scholar Google, ResearchGate, ArXiv, JSTOR, ORCID, ResearcherID.		
4. Mathematical writing – general rules. What is the theorem, the lemma, the proposition? Which are the differences between them? What is the corollary, the hypothesis, the conjecture, the proof, etc. Mathematical expressions, symbols and their use.	Exposure, description, explanation, dialogue.	
5. What is allowed in mathematical writing (do-s and don't-s of mathematical writing).	Exposure, description, explanation, examples.	
6. Writing a research paper: the audience, the structure, the right title, the abstract, the keywords.	Exposure, description, explanation, examples, dialogue.	
7. Writing a research paper: the introduction, the tables, the citations, the conclusions, the numerical examples, the acknowledgements, the appendix, the bibliography.	Exposure, description, explanation, examples, dialogue.	
8. Writing a Ph.D. thesis: the main rules, the aim and scope of the thesis, the criterions that should be fulfilled, the content, the audience, the structure, the right title, the abstract, the presentation. Writing the oral presentation of the Ph. D. Thesis.	Exposure, description, explanation, examples, dialogue.	
9. Ethic and integrity approach of writing a mathematical research paper. Ethic and integrity aspects in scientific research (1): definitions, general ethics problems	Exposure, description, explanation, examples, dialogue.	
10. Ethic and integrity aspects in scientific research (2): The General Ethic Code in Scientific Research. Legal approach. Ethic and integrity aspects in scientifc research (3): general and specific objectives (Strategia Națională de Cercetare, Dezvoltare si Inovare 2014-2020).	Exposure, description, explanation, examples, dialogue.	
11. Ethic and integrity aspects in scientific research: (4): ethics and integrity in fundamental research.	Exposure, description, explanation, examples, dialogue.	
12. Ethic and integrity aspects in scientific research: (5): aspects from European community. Documents of the European Commission.	Exposure, description, explanation, examples, dialogue.	

Bibliography

1. A. Borja, *11 steps to structuring a science paper editors will take seriously*, Elsevier, 2014.
2. B. Buchberger, *Thinking, Speaking, Writing*, http://www.risc.jku.at/people/buchberger/thinking_course.html
3. R. A. Day, *How to Write and Publish a Scientific Paper*, Cambridge, 1994.
4. M. Derntl, *Basics of research paper writing and publishing*, Int. J. Technology Enhanced Learning, Vol. 6, No. 2, 2014.
5. P. Edwards: *How to give an academic talk*, http://pne.people.si.umich.edu/PDF/howtotalk.pdf

6. N. J. Higham, *Handbook of Writing for the Mathematical Sciences*, SIAM, Philadelphia, 1998.
7. B. J. Hoogenboom, R. C. Manske, *How to write a scientific article*, Int J Sports Phys Ther., 2012 7(5), pp. 512–517.
8. R. Kitchin,& D. Fuller, *The Academic' Guide to Publishing*, SAGE Publications, London, 2005.
9. Mathematics Subject Classification (MSC) https://mathscinet.ams.org/mathscinet/msc/msc2010.html
10. B. Spillman, I. Parberry, *How to Present a Paper: A Speaker's Guide*, http://www.sfu.ca/~jeffpell/Ling480/ParberryMembrane.pdf
11. *The Clarivate Analytics Impact Factor*, https://clarivate.com/essays/impact-factor/
12. *University ranking*, http://www.topuniversities.com/university-ranking-articles/
13. *Codul etic al UBB*, http://www.ubbcluj.ro/ro/despre/organizare/files/etica/Codul_Etic_al_UBB.pdf
14. *Zentralblatt Mathematics* https://zbmath.org/

8.2 Seminar	**Teaching methods**	**Remarks**
1. Searching for scientific papers in the research field of the Ph.D thesis on the websites of the most important international publishing houses.	Explanation, dialogue, examples.	
2. Using of Scholar Google (https://scholar.google.ro), ResearchGate, ArXiv, JSTOR.	Explanation, dialogue, examples.	
3. Searching for scientific papers in Web of Science (Clarivate) (https://webofknowledge.com/).	Explanation, dialogue, examples.	
4. Writing mathematical expressions using Scientific Word and LaTeX.	Explanation, dialogue, examples.	
5. Writing research papers and talks using Overleaf.	Explanation, dialogue, examples.	
6. Presentation of a research project in the field of the Ph.D thesis	Explanation, dialogue, examples.	

Bibliography

1. R. A. Day, *How to Write and Publish a Scientific Paper*, Cambridge, 1994.
2. M. Derntl, *Basics of research paper writing and publishing*, Int. J. Technology Enhanced Learning, Vol. 6, No. 2, 2014.
3. P. Edwards: *How to give an academic talk* http://pne.people.si.umich.edu/PDF/howtotalk.pdf
4. N. J. Higham, *Handbook of Writing for the Mathematical Sciences*, SIAM, Philadelphia, 1998.
5. B. J. Hoogenboom, R. C. Manske, *How to write a scientific article*, Int J Sports Phys Ther., 2012 7(5), pp. 512–517.
6. Mathematics Subject **Classification** (MSC) https://mathscinet.ams.org/mathscinet/msc/msc2010.html
7. *The Clarivate Analytics Impact Factor*, https://clarivate.com/essays/impact-factor/
8. *Zentralblatt Mathematics* https://zbmath.org/

9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

- The course offers an overall perspective of the research in Mathematics
- The course offers knowledges about integration in research community.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course	To know the main principles in research and in writing a research paper in Mathematics.	Oral presentation.	50%
10.5 Seminar	To be able to write a scientific paper using LaTeX and Overleaf.	Accomplishment of given tasks.	50%
10.6 Minimum performance standards			
● At least 5 grade. The student should be able to: ● review a scientific paper ● write and present a scientific paper.			

Date	Signature of course coordinator	Signature of seminar coordinator
30.06.2021	Conf. Dr. Teodora Cătinaș	Conf. Dr. Teodora Cătinaș

Date of approval

07.07.2021

Signature of the head of doctoral school

Prof. dr. Gabriela Czibula