

University of Sulaimani  
College of Science



## ***Thesis Writing Guide***



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## Foreword

The thesis is for many students the very first "real" report a student will write. Many graduate students are not sure how to begin, what to put into a thesis, and how to organize the work. This booklet is a comprehensive guide to writing a thesis at the University of Sulaimani. Although it is specifically catered to masters' theses, this manual can also serve as a guide for those completing Ph.D. dissertations and other writing projects.

This guide offers time-saving advice on how to compile your references. Along with steps to writing your thesis, this handbook introduces and explains the defense of the thesis. Many of the pointers on grammar, style, and spelling are useful also to those with English as the first language.

Guidance from your advisor is essential, but you'll find the answers to your basic questions and uncertainties here.

### Content Requirements for a thesis:

<b>Preliminary Pages</b>	Title page	<b>Required</b>
	Supervisor Certification	<b>Required</b>
	Linguistic Evaluation Certification	<b>Required</b>
	Examining Committee Certification	<b>Required</b>
	Dedication	If any
	Acknowledgements	<b>Required</b>
	Abstract	<b>Required</b>
	Table of contents	<b>Required</b>
	List of tables	If any
	List of figures	<b>Required</b>
	List of abbreviations	If any
	Glossary	If any
<b>Body of Text</b>	Introduction	Required; Organized according to conventions of scientific disciplines.
	Literature review	
	Methodology	
	Results	
	Discussion	
	Conclusions	
<b>End Pages</b>	Appendix	If any
	References / Bibliography	<b>Required</b>
Kurdish Language	Title page	<b>Required</b>
	Abstract	<b>Required</b>
Arabic Language	Title page	<b>Required</b>
	Abstract	<b>Required</b>

## The Process: Preparing and Writing the Thesis:

Writing a thesis can be complicated, but it doesn't have to be. Often, graduate students are not familiar with the process that goes into writing and submitting a thesis. Here is a basic overview of what's to come:

1. *Preparing* for the thesis may take as much effort as the thesis itself. It is important that you have a topic which is both interesting to you (you will be spending a lot of time on it!) and realistic; you should have an idea of what you are getting yourself into before you start. Preparation also involves choosing an advisor and a committee in front of whom you will defend your thesis.
2. *Writing a thesis proposal* is the first formal writing step in the process. The proposal can sometimes be the first three chapters of the thesis (the introduction, literature review and methodology), or at the very least, their summaries.
3. After the *research* or experiment has been thoroughly completed, the remaining sections of the thesis need to be composed. These are usually divided into the *results*, *discussion*, and *conclusions* chapters.
4. Once you've written the thesis, you will need to write an *abstract* to add to the beginning.
5. With the important thoughts on paper, you should consider the *formatting* aspect of writing.
6. After the thesis is complete, you will need to *submit* the thesis to your advisor and committee members in advance, to give them a chance to read it before your defense. The actual *thesis defense* is a presentation of your work, followed by questioning by the committee.

## Preparing to Write the Thesis:

Writing a thesis is different from many of the previous things you may have done because it is almost entirely defined by you and you have the freedom to do research in an area of your own interest. It is important for you to have a lot of academic, as well as emotional support, during this time, whether from your advisor, your fellow Masters' or Ph.D. candidates, your family, and others.

### **Be Realistic:**

It is essential to be realistic about writing your thesis. The thesis is an academic requirement, and much of its purpose lies in its process and what you learn from it. Second, it is important to realize how much time you are willing to spend on this project and to act accordingly. If your aim is to have a study that lasts for years and you have the means and will to do it, then forge ahead! However, think twice before jumping into a study that you will be unable to complete. It's also important to have a topic which is narrow enough to be manageable.

## The Writing Process:

Needless to say, your thesis will involve a lot of writing. If you are unsure of your skills as a writer, perhaps you should brush up on your knowledge of the writing process. Writing is more than copying down words. There are certain steps that must be followed to ensure that your writing is coherent and clear. An important idea to remember is that writing is a process; you should be writing throughout the

process, not just when the time comes to turn in a finished product. It's helpful to keep a notebook of ideas and rough drafts at hand and continuously write down your thoughts.

### **Scheduling:**

Keeping a schedule is a key aspect of writing a thesis. Creating a rough timeline or checklist will help you focus on deadlines, university-determined deadlines and/or those you've set for yourself. It is also helpful to put this timeline in a place where you will always see it, in order to be constantly reminded of your work.

You might think to organize your timeline into five sections:

1. Preparing for the thesis
2. Writing a proposal
3. Conducting research
4. Writing the thesis
5. Revising the thesis

Give yourself enough time for each section and stay on schedule!

### **Revising:**

Revising is often not given the importance it deserves. Make sure you revise your thesis adequately before submitting it. Revision can be performed on organization, ideas, grammar, usage, etc. You can get help from a professional editor or simply have peers read over your work. A fresh perspective is usually helpful in giving new ideas and refining old ones.

### **Style:**

There is no specific length that a thesis needs to be, but each department may have specifications; your advisor will help you decide the number of pages. All theses need to be written in English. The parts of the thesis that refer to research that has already been done should probably be written in past tense. Make sure to use clear and unambiguous words in your writing. Keep using the same terms throughout to refer to the same concept; it will help keep your writing clear.

### **Organization:**

The thesis should be divided into: preliminary pages, text, and end pages. Each of these parts may be divided into sections. A clear table of contents should explain the organization of the thesis.

### **When you're stuck:**

So you're writing your thesis and doing fine, and then suddenly you get writer's block! The following ideas might help you get over your writer's block:

1. Take a break: maybe you just need a ~~15~~ minute, or even a few days break. But do respect your deadlines.
2. Make sure the goals you are setting for yourself are realistic. Having extremely high expectations for yourself is overwhelming.

3. Reread what you've written already and see if any interesting points jump out at you. Try to comment on them and see if it takes you somewhere. Or look further into some of the smaller concepts you've talked about. Try to dig deeper and see if it will take you forward.
4. In the future, end your writing at a point that will be easy to pick up again the next time you write. Write before you do anything else; give it priority.
5. Consider meeting with a colleague or writing center tutor to discuss your research and where you might proceed from this point.

IMPORTANT NOTE: Always save a backup soft copy of your thesis in a separate and safe hand for accidental loss! Periodically, print out a hard copy of your thesis and keep it in a safe place!

### **Writing the Thesis:**

It's reasonable to start writing whatever part of the thesis you feel most comfortable with. You can then move sections around and sequence them as you see fit. At this point you will need to change the tense of your methodology section to past tense, to reflect what you have already done.

### **Page Numbering:**

Small Roman numbers must be used for the Preliminary section. The title page is understood to be "i" but no number appears on this page. Arabic numbers begin with the first page of the body of thesis, but no number appears on this page. Numbering continues consecutively through the appendices. All the numbers, both Roman and Arabic, are printed 1 cm from the bottom of the paper flushed to the center of page.

### **Introduction:**

The introduction describes your thesis briefly. The introduction will include the background information, the problem your study addresses, a rationale for why your research is needed, and what you plan to research (Goals). You also need to state the research questions that will guide your research. They will link between your research and previous research.

### **Literature Review:**

The literature review allows you to process the available research related to your topic. This is where your research log of relevant literature will come in handy. The literature review should be a comprehensive review of all the research that's been done in the field of your study, or your geographic location, or local related studies. You should not simply summarize books and articles in your literature review, but instead mention key issues, researchers' theories, experiments, and proposed studies in this field.

### **Methodology:**

Then you can move on to the methodology section of your proposal. Methodology should be chosen carefully; consider all of your options before choosing how you will proceed with your experiment or analysis. Sometimes you will even be able to use combined methodology or develop your own instruments. If you have financial needs for your experiment or analysis, be sure to budget for your methodology.

The methodology section describes how your research will be performed and the process you go through. This includes the type of research methods as well as a step-by-step description of the research. You can also discuss the different materials and apparatuses you will use in the study, including anything from surveys in the social sciences, to raw materials, or chemicals and equipment in the hard sciences. You will also need to discuss the participants (if relevant to your study): how you choose them, on what basis, who they are, background information, etc. Discussing how you plan to analyze your data is also important. You may also mention when and where your research will be conducted.

Each department may have different guidelines for this section of the thesis so it is important to check with your advisor.

### ***Figures and Tables:***

Make sure you introduce and describe all Figures and Tables in your text (you will also need to discuss them in the discussion section). Each Figure should be placed immediately after the page at which the figure is first mentioned. Use similar wording to describe similar Figures for the sake of clarity. Figures and Tables are numbered according to the chapter in which they first appear. Each Figure and Table must have a unique title descriptive of its contents. No two titles can be exactly the same. The number and title must appear below each Figure and above each Table. Each Figure should be immediately placed after the page it has been mentioned at. Large maps, charts and diagrams can be folded and either bound within the thesis or placed in attached pocket.

### ***Equations:***

Use the equation option of your word processor to obtain clear equations. Similar to the numbering of Figures and Tables, equations are numbered according to the chapter in which they first appear. When referring to specific equation, say, "Eq.2.4", for reference to two equations write "Eqs. 3.5 and 3.8".

### ***The Results Section:***

In this section, you will need to state the results of your research without discussing them. There may be graphs, tables, figures, etc., all of which you need to describe. This section may be optional and varies depending on the discipline and department.

### ***The Discussion Section:***

In the discussion section, you will need to discuss the previously mentioned results. You should address your research questions and explain how your research relates to previous researches.

### ***Conclusions:***

In the conclusions section, make sure that you are discussing or adding something new about the research, and not just restating the discussion chapter. Do not summarize your thesis in the conclusions. Highlight the important points of your work and their application. Help the reader understand what your research means or implies. Write about how the key ideas in your thesis can be applied to other fields of study. Sometimes this section is done best after taking a break from the rest of the thesis.

Before you finish, go back to the beginning of your thesis, to the introduction, and make sure that everything you said you would cover is completed. Make sure that the concepts in the conclusion are presented in the introduction. *"Deliver what you promise!"*

### **Literature References:**

Different departments require different citation styles. You should determine the accepted citation in your field of study. Refer to your department for information on citation style. The purpose of internal referencing is to guide the reader to the appropriate entry in the list of references/bibliography, where complete information is available. Two common methods of referencing are:

- 1- Use the author's name and date of publication; Literature references in the text are cited by the last name of the author(s) followed by the year of publication in parentheses. If more than two authors exist for a paper, use the first author's name followed by "et al" (which means "and other"). If there is more than one paper cited within the parentheses, place the references in chronological order and separate them by semicolons. When reference is made to more than one paper by the same author(s) published during the same year, separate the references by adding a letter after the year, e.g. 1984a, 1984b, etc. The list of references in this case is given alphabetically and without any abbreviations and do not number them.
- 2- Assign numbers to the bibliographic entries and insert the corresponding numbers for the authors as they are cited in the text. In-text references to the author's name normally refer to an alphabetical list of sources; numbered references normally refer to a numeric list.

### **Alphabetical References List:**

The reference list at the end of your thesis, titled **References**, records in *full detail* all of the condensed in-text citations in alphabetical order of author. Note that the year of publication immediately follows the author's name. Only titles of books or journals should be *italicised*. The title of an article or a chapter in a book should be placed within "quotation marks". Choose either single ' ' or double " " but don't mix and match.

#### **Books:**

1. Author (family name first, followed by given name - as it appears in the book)
2. Year of publication
3. Title of book: including subtitle if there is one
4. Facts of publication (city of publication: publisher)

#### **Example** (one author)

Cook, R. D. (1995) *Finite Element Modeling for Stress Analysis*, John Wiley and Sons, Inc.

#### **Example** (multiple authors)

Tenek, L. T., and J. Argyris (1998) *Finite Element Analysis for Composite Structures*, Kluwer Academic Publishers.

### **Chapter/article in a book:**

This is a collection of articles or chapter by different authors in the one book

1. Author

2. Year of publication
3. Title of article (in quotation marks)
4. In
5. Book title (in italics)
6. Edited by
7. Page numbers
8. Facts of publication

**Example**

Chen, W. F. (1984) "Chapter 5: Constitutive Modeling in Soil Mechanics", in *Mechanics of Engineering Materials*, edited by Desai, C. S, and Gallagher, R. H, Chichester, pp. 91-120. John Wiley & Sons Ltd.

**Journal articles:**

1. Author
2. Year
3. Title of article (in quotation marks)
4. Title of journal (in italics)
5. Volume and issue number (or part/season, if there is one)
6. Page number of the full article

**Example** (one author)

Redanz, P. (2001) "A Study of Stresses in Powder Compacted Components During and After Ejection", *International Journal of Solids and Structures* 38: 759-775.

**Example** (multiple authors)

Coube, O., and H. Riedel, (2000) "Numerical Simulation of Metal Powder Die Compaction with Special Consideration of Cracking", *Powder Metallurgy* 43(2): 123-131.

**Thesis and Dissertation:**

1. Author
2. Year
3. Title of thesis (in quotation marks)
4. M.Sc. thesis or Ph.D. dissertation (in italics)
5. Name of University or Institute (city and Country of publication)

**Example** (M.Sc. Thesis)

Wang, W. (1999) "Numerical Modeling of Compaction of Particulate Systems", *M.Sc. thesis*, University of Florida, United States.

**Example** (Ph.D. Dissertation)

Kok, C. K. (2004) "Finite Element Simulations of Ceramic Powder Compaction and Sintering in the making of a Micro Heat Exchanger", *Ph.D. dissertation*, Michigan State University, United States.

**Numbered References List:**

For numbered references, the reference list is ordered in the order of their appearance in the paper. All the above references were written in reference number citation:

### References:

- [1] Cook, R. D., *Finite Element Modeling for Stress Analysis*, John Wiley and Sons, Inc. (1995).
- [2] Tenek, L. T., and J. Argyris, *Finite Element Analysis for Composite Structures*, Kluwer Academic Publishers, (1998).
- [3] Chen, W. F., "Chapter 5: Constitutive Modeling in Soil Mechanics", in *Mechanics of Engineering Materials*, edited by Desai, C. S, and Gallagher, R. H, Chichester, pp. 91-120. John Wiley & Sons Ltd, (1984).
- [4] Redanz, P., "A Study of Stresses in Powder Compacted Components During and After Ejection", *International Journal of Solids and Structures* 38: 759-775, (2001).
- [5] Coube, O., and H. Riedel, "Numerical Simulation of Metal Powder Die Compaction with Special Consideration of Cracking", *Powder Metallurgy* 43(2): 123-131, (2000).
- [6] Wang, W. "Numerical Modeling of Compaction of Particulate Systems", *M.Sc. thesis*, University of Florida, United States, (1999).
- [7] Kok, C. K. "Finite Element Simulations of Ceramic Powder Compaction and Sintering in the making of a Micro Heat Exchanger", *Ph.D. dissertation*, Michigan State University, United States, (2004).

### Appendices:

The appendices contain information which, although essential to the thesis, or highly detailed. Tables containing the raw data of an investigation should be placed in an appendix. Computer program listings (codes) may be incorporated directly in the appendices placing only a flow chart of the program in the main body of the thesis.

The appendices should be numbered A, B, C, etc. in conformity with the organization of tables and figures in the main body; A1, A2, A3, etc. identify tables and figures in the Appendix.

### Writing an Abstract:

An abstract is a very brief summary of the main points of your research that will be placed at the beginning of your thesis. It is important to identify the research questions that you deal with in your thesis. Make sure it contains the statement of the problem, describes methods and procedures, and briefly introduces the results and conclusions. The purpose of an abstract is to give other researchers an idea of what your thesis is about. Giving the right information in an abstract is important because it will inform your readers about your thesis quickly; allowing them to decide whether or not it is relevant for their own research. An abstract is usually maximum one page long, and often even less.

Check with your department for details.

### Formatting Thesis Writing:

The paper should be of white, good quality bond of size 216 mm by 299 mm (8.5 in by 11.0 in). Follow the following format through the main body of your thesis:

1. Use Times New Roman and 14 pt font.
2. Use Line Spacing of 1.5.
3. Use (2.5 cm) top, bottom, and right margins as well as (3.0 cm) left hand margin.

4. The text of a thesis/dissertation must appear in a single column on each page and make text right justification.
5. Begin each chapter after two blank lines, with "**CHAPTER #**" writing in 14 pt font (**Bold**) centered and the title of the chapter written below followed by two blank lines.
6. All the heading lines with their section number are writing in 14 pt font (**Bold**) with the left margin.
7. The chapters are divided into sections and each section has a title. A section may be divided into subsections. Thus, the number "1.2.3" identifies a text as the third subsection in section 2 of chapter 1.
8. Separate all heading lines by a blank line.
9. The first line of the paragraphs in the text should be indented by (0.5 cm) from the left.
10. Use a top running head identifying the chapter to which the page belongs.
11. Place the page numbers at the bottom-center of the page in 12 pt font.
12. Kurdish title and abstract should be written in 'Kurdish Unicode' or 'Ali\_K\_Alwand' type.
13. The specimen of some preliminary pages is given in the following Appendix.

### **The Thesis Defense:**

#### ***Preparing for the Defense:***

Although the name thesis "defense" sounds like something frightening, it is actually just a meeting where you will explain your thesis and answer questions; you do not actually need to defend yourself. Try to attend a thesis defense to see exactly what it is like. If that is not an option in your department, ask others that have gone through it to describe the experience and give their advice.

Discuss research with others who may bring insight into your paper. The questions they ask could help you see where you have a problem.

It's best to only allow your advisor to read your thesis as you are writing it; stick to the suggestions he/she makes. Make sure to meet with your advisor to discuss how to prepare for your defense.

A pre-defense seminar of your thesis at your department might be helpful exercise to ensure overall evaluation of your work by sharing other specialized people your thoughts and ideas. It also gives you the chance to practice defense presentation and discussion.

#### ***During the defense:***

It's helpful to remember that the thesis defense is meant to be critical of your work. A good rule of thumb is to answer only questions, and not comments. Answering everything said in the defense will only make you frustrated and won't be helpful. Instead, calmly say "thank you", write a note for yourself to check over this point later, and proceed with the defense.

Although it's hard to detach yourself from something you've put so much work into, this will save you time, energy, and emotions. You may also want to tape record your defense so that you can actually listen to the comments and leave the note taking for later.



# THESIS/DISSERTATION FULL TITLE

**A thesis  
Submitted to the Council of  
The college of Science at the University of  
Sulaimani in partial fulfillment of the requirements  
For the degree of Master of  
Science in Physics  
(Material Sciences)**

By

**Student Full Name**

B.Sc. Physics (2012), University of Sulaimani

Supervised by

**Dr. Full Name**

Assistant Professor

Month, Year in English  
(Date of discussion)

Month, Year in Kurdish  
(Date of discussion)

## **Supervisor Certification**

I certify that the preparation of thesis titled "Thesis full title" accomplished by (Student Full Name), was prepared under my supervision in the college of Science, at the University of Sulaimani, as partial fulfillment of the requirements for the degree of Master of Science in (Physics).

Signature:

Name: Supervisor's full name

Title: Assistant Professor

Date:     /     / 2015

In view of the available recommendation, I forward this thesis for debate by the examining committee.

Signature:

Name: Head of the department full name

Title: Assistant Professor

Date:     /     / 2015

## **Linguistic Evaluation Certification**

I hereby certify that this thesis titled "Thesis full title" prepared by (Student Full Name), has been read and checked and after indicating all the grammatical and spelling mistakes; the thesis was given again to the candidate to make the adequate corrections. After the second reading, I found that the candidate corrected the indicated mistakes. Therefore, I certify that this thesis is free from mistakes.

Signature:

Name: **Full name**

Position: **English Department, School of  
Languages, University of Sulaimani**

Date:        /     / 2015

## Examining Committee Certification

We certify that we have read this thesis entitled "Thesis full title" prepared by (Student Full Name), and as Examining Committee, examined the student in its content and in what is connected with it, and in our opinion it meets the basic requirements toward the degree of Master of Science in Physics "Material Sciences".

Signature:

Name: **Dr. Full name**  
Title: **Professor**  
Date: / / 2015  
(Chairman)

Signature:

Name: **Dr. Full name**  
Title: **Professor**  
Date: / / 2015  
(Member)

Signature:

Name: **Dr. Full name**  
Title: **Assistant Professor**  
Date: / / 2015  
(Member)

Signature:

Name: **Dr. Full name**  
Title: **Assistant Professor**  
Date: / / 2015  
(Supervisor-Member)

Approved by the Dean of the College of Science.

Signature:

Name: **Dr. Bakhtiar Q. Aziz**  
Title: **Professor**  
Date: / / 2015

## Abstract

The Azmar, Surdash, Piramagroon, Sulaimani, Miran and Darbandi Bazian-Sagirma-Qaradagh structures in northeastern Iraq have been studied from structural and tectonic points of view.

The study area is located within the high folded and imbricated zones of the northwestern segment of the Zagros Foreland Fold Thrust Belt in northeast of Iraq. The trend of these folds and the strike of the strata are of NW-SE direction in accordance with the main trend of Zagros folds.

### پوخته

لهم لیکۆلینهوهیهدا چپاکانی (structure) ئەزمەر و سورداش و پیرمهگرون و میران و دەریندیپازیان-سەگرمە-قەرەداغ لە باکوری رۆژەلاتی عێراق خراونەتە بەر باس و لیتۆئۆزینەوه لە رووی پیکهاتووی تکتونی یهوه. شوێنی توێژینەوه که دهکهوتیه نیوان دوو ناوچهی جیۆلۆجییهوه که بریتین له ناوچهی چینه چهماوه بەرزەکان ( High Folded Zone) و ناوچهی بەسەریهکداکهوتوو یان سواریهکتربوو (Imbricated Zone) که هەردووکیان بەشێکن لە پارچهی باکوری رۆژئاوای پشتنیهی چهماوهی پێشەوهخزاوی زاگروس لە باکوری رۆژەلاتی عێراق.



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## اسم الاطروحة

رسالة  
مقدمة الى مجلس كلية العلوم  
في جامعة السليمانية كجزء من متطلبات  
نيل شهادة ماجستير في علوم  
الفيزياء  
(علم المواد)

من قبل

اسم الطالب

ماجستير فيزياء (2012)، جامعة السليمانية

بإشراف

د. اسم المشرف

استاذ المساعد

شهر و السنة الهجرية  
(تاريخ المناقشة)

شهر و السنة الميلادية  
(تاريخ المناقشة)

## ناونیشانی تووژینهوهکه

نامهیهکه

پیشکەش کراوه به ئەنجومەنی کۆلیجی  
زانست له زانکۆی سلیمانی وهک بهشیک له پێداویستیهکانی  
بهدهستهینانی بروانامهی ماستەر  
له زانستی فیزیا  
(زانستی ماددهکان)

له لایهن

ناوی خویندکار

ماستەر له فیزیا (2012)، زانکۆی سلیمانی

به سههر پهرشتی

د. ناوی سههر پهرشتیار

پروفیسۆری یاریدهدهر

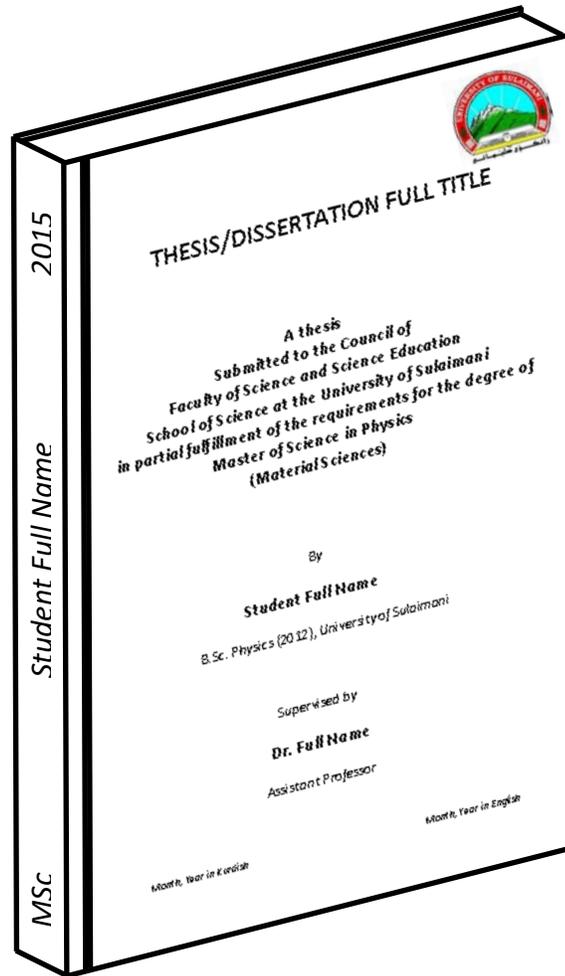
مانگ و سانی کوردی

(بهرواری گفتوگۆ)

مانگ و سانی زایینی

(بهرواری گفتوگۆ)

Front Cover:



CD:

