

# M.Sc. FOOD SCIENCE & NUTRITION LAB MANUAL

4th Semester



Prepared By  
**Biological Science Dept.**  
Food Science & Nutrition

## MIDNAPORE CITY COLLEGE



**INTERNSHIP****Code: FSN 493****Full Marks - 100****8P****Credit-4****Internship Training in Hospital****Report Preparation**

Students are required to perform internship in hospitals / foods service institutions / Clinics and they have to submit a report on the internship training during examination. Evaluation of internship shall be made on the basis of report and viva-voce examination (At least one month).

**PROJECT WORK****Code: FSN 494****Full Marks - 100****8P****Credit-4****Project work**

(An independent research project work undertaken by student under the guidance of a teacher, can either be a survey or Laboratory oriented research. The research should be submitted at the end of session in the form of a dissertation. The project work can be undertaken at University departments, affiliated research institutions, quality control laboratories, food industries or other institutions with prior approval)

(The student should appear before examiners board and the dissertation shall be evaluated by means of presentation and viva – voce).

## **FSN 494 PROJECT WORK**

Students have to submit a copy of synopsis to the expert according to the guidance of the supervisor. The synopsis contains the proposed project work that have to present before the expert for approval. After being approved by the experts the project work will be done accordingly.

Here format of synopsis and the format of final project work is given.

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# Title of Your Project (Capitalized Each Word except Preposition)

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*Project Submitted to Midnapore City College  
for the Partial Fulfillment of the Degree of  
Master of Science (Your Subject)*

*Submitted by*

**Your Name**

Under supervision of

**Supervisor Name**



Department of Biological Sciences  
**MIDNAPORE CITY COLLEGE**  
Kuturiya, P.O. Bhadutala, Pin-721129  
Paschim Medinipur  
West Bengal, India

**Year**

**Abstract**

## **Introduction and literature review**

### **Introduction**

- A.** Broad introduction to thesis topic and method. One or two pages.
- B.** Research problem. State broadly. Explain carefully. In one sense, usually the problem is to expand the body of knowledge examined in the literature review.

### **Literature Review**

- A.** Brief Overview. Theoretical foundations.
- B.** Literature. Group articles by ideas. For a given idea, first discuss common strands in the literature.
- C.** Model. Of a process, usually. Based on the literature reviewed.
- D.** Point out the gap
- E.** Reveal the research question and sometimes Hypotheses (in broad sense of the term; also called Propositions). For each, give brief restatement of justification tied to earlier sections; explain derivation and implications. Include assumptions. Explicitly state plausible rival hypotheses (explanations of process) of a substantive nature.

**Aims and objectives:**

**Methods (Short description)**

### Project Schedule

(USE EXCELL SHEET FOR SCHEDULING)

#	Activity Description	D A Y S															
		3	9	15	21	27	33	39	45	51	57	63	69	75	81	87	93
1	Project Initiation Project Planning	7															
2	Step I		14														
3	Step II				15												
4	Step III						16										
5	Step IV						31										
6	Step V						45										
7	Final Report												11				
8	Implementation													7			
9	Final inspection															3	

## Estimation

Please summaries expected expenses for your project (eg. Expenses for chemicals, instruments, electronic components etc.)

Item	Expenses
A. Recurring:	
1.Remunerations/salaries	
2.Consumables Chemicals and Glassware	
4. Other costs	
B. Non-recurring Permanent equipment	
Grand Total (A+B)	

## Conclusions and expected outcome

A. Summary of entire proposal.

B. Conclusions.

C. Implications. Speculate about broadest possible consequences, both theoretical and practical. Label speculation clearly.



**References.** Include all relevant sources examined, whether cited or not.

**Reference style Text** (Only within the text): All citations in the text should refer to:

1. Single author: the author's name (without initials, unless there is ambiguity) and the year of publication;
2. Two authors: both authors' names and the year of publication;
3. Three or more authors: first author's name followed by 'et al.' and the year of publication. Citations may be made directly (or parenthetically).

Examples: 'as demonstrated (Allan, 2000a, 2000b, 1999; Allan and Jones, 1999). Kramer et al. (2010) have recently shown ....'

List: References should be arranged first alphabetically.

More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.

Examples: Reference to a journal publication: Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2010. The art of writing a scientific article. *Journal of Physics Communications*, 163, 51–59.

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# Title of Your Thesis (Capitalized Each Word except Preposition)

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*Thesis Submitted to Midnapore City College  
for the Partial Fulfillment of the Degree of  
Master of Science (Your Subject)*

*Submitted by*

**Your Name**

*Guided by*

Guide name



Department of Biological Sciences  
**MIDNAPORE CITY COLLEGE**

Kuturiya, P.O. Bhadutala,  
Paschim Medinipur, Pin-721129  
West Bengal, India

**Year**

**Certificate (Should be printed in College letter head)**

This is to certify that the project report entitled <Title of the project> submitted by **<name of the candidate>** **<Roll No.>** to the Midnapore City College, Midnapore, West Bengal, India during the year of 2019 in partial fulfillment for the award of the degree of M.Sc. in **<Stream>** is a bona fide record of project work carried out by him/her under my/our supervision. The contents of this report, in full or in parts, have not been submitted to any other Institution or University for the award of any degree

Guide name and Designation

Principal

MIDNAPORE CITY COLLEGE

Director

MIDNAPORE CITY COLLEGE

Date:

Place: Midnapore City College, Paschim Medinipur

### Declaration

I do hereby declare that the present Master thesis entitled '*title of your work*' embodies the original research work carried out by me in the Department of Biological Sciences, Midnapore City College, Paschim Medinipur, West Bengal, India under the supervision of Your Guide Name, Designation, Department, College/ Institution name and address. No part thereof has been submitted for any degree or diploma in any University.

Date:

Place: Midnapore City College, Paschim Medinipur

(Your Name)

## Approval Sheet

This project report entitled (Title) by (Author Name) is approved for the degree of \_\_\_\_\_ (Degree details).

(Signature of Examiners)

(Name :.....)

(Signature of Guide)

(Name :.....)

(Signature of Principal)

(Name : Dr. Sudipta Chakrabarti)

(Dr. Pradip Ghosh)

Director

Midnapore City College

Date : \_\_\_\_\_

Place: \_\_\_\_\_

**Dedicated to my Parents/ Teacher/  
any other relatives**

**(Optional)**

### **Acknowledgment**

I would first like to acknowledge Dr. Pradip Ghosh, Hon'ble Founder Director, Midnapore City College, Paschim Medinipur for providing me the opportunity to study and complete my thesis work in this college. I am gratefully indebted to him for his very valuable comments on this thesis.

I would like to thank my thesis adviser [Dr./Mr.] [Name Surname] of the [Department name] at [College name]. The door to Prof. [Last name] office was always open whenever I ran into a trouble spot or had a question about my research or writing. He/She consistently allowed this paper to be my own work, but steered me in the right the direction whenever he/she thought I needed it.

I would also like to thank the other Faculties (Title, Name and Surname of all of the Other Faculties in the Department) and other non-teaching staffs for their support to carry out this research project. Without their passionate participation and input, the validation survey could not have been successfully conducted.

Finally, I must express my very profound gratitude to my parents (or any other person) for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis. This accomplishment would not have been possible without them. Thank you.

Author

[Name Surname]

## **Abstract**

Brief summary of your thesis. Please be specific at your point.

## **List of Tables**

Table 1.

## **List of Figures**

Fig. 1.

## **Table of Contents**

### **CONTENTS**

### **PAGE No.**

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## **Chapter 1: Introduction**

### **1. Introduction**

- A.** Broad introduction to thesis topic and method. One or two page.
- B.** Research problem. State broadly. Explain carefully. In one sense, usually the problem is to expand the body of knowledge examined in the literature review.

## **Chapter 2: Literature Review**

### **2. Literature Review**

- A.** Brief Overview. Theoretical foundations.
- B.** Literature. Group articles by ideas. For a given idea, first discuss common strands in the literature.
- C.** Model. Of a process, usually. Based on the literature reviewed.
- D.** Point out the gap
- E.** Reveal the research question and sometimes Hypotheses (in broad sense of the term; also called Propositions). For each, give brief restatement of justification tied to earlier sections; explain derivation and implications. Include assumptions. Explicitly state plausible rival hypotheses (explanations of process) of a substantive nature.

## **Chapter 3: Aims and Objective**

### **3. Aims and Objective**

From the gap found in the literature review, set a particular aim(s). To fulfill that aim, set the objectives.



## Chapter 4: Materials and Methods

### 4. Materials and Methods

- 4.1. Materials: All of the chemicals were procured from the company name, country name.
- 4.2. Sample collection: Briefly describe the sample collection and storage method.
- 4.3. Other methods: Broadly describe the methods used for the thesis work.

Or

- 4.1. Design. Experiment, quasi-experiment, survey, and so forth. Detailed description.
- 4.2. Sample. Universe, population, element, sample design, tolerance, probability.
- 4.3. Measurement. Operational definitions. Include, as applicable, detailed discussion of indexes/ scales. Specify methods used to assess validity and reliability.
- 4.4. Analysis. Techniques to be used; justification. Nature of relationships expected (e.g., asymmetrical, symmetrical, reciprocal; linear, monotonic, other curvilinear; necessary, sufficient, necessary and sufficient). Include dummy tables and worked examples of statistics.
- 4.5. Validity. Design: Internal and external, with relevant subtypes.
- 4.6. Methodological assumptions. Discuss limitations they impose.

Please use past tense while writing the methods. If you want to use any other tense, please contact with your guide.

## **Chapter 5: Results**

### **5. Results**

- 5.1. Brief overview.
- 5.2. Results of application of method; any unusual situations encountered. Nature of sample.
- 5.3. Descriptive analysis. One-way frequency distributions on central variables.
- 5.4. Validity/reliability analysis.
- 5.5. Tests of hypotheses. ANOVAs, crosstabulations, correlations, and such, depending on techniques used; give in same order as hypotheses.

## **Chapter 6: Discussion**

### **6. Discussion**

Prepare a short introduction about the broad problems (2-4 sentences)

While discussing implications, deal with both the theoretical and the practical. Present only interpretations of the findings, not opinion.

You may combine different results and make a solid outcome from those combined results. Discuss the other reported findings with your results and make a conclusive line to justify your findings.

Discussion of results of application of method. Implications.

## **Chapter 7: Conclusions**

### **7. Conclusions**

May include writer's opinion.

- A. Summary of entire findings.
- B. Conclusions.
- C. Implications. Speculate about broadest possible consequences, both theoretical and practical. Label speculation clearly.
- D. Limitations. Theory, method.

## Chapter 8: Future Scope

### 8. Future Scope

Brief write up about the future scope of the present research.

**Appendices.** Bibliographic essay. Questionnaire and coding manual, if any. Raw data.

**References.** Include all relevant sources examined, whether cited or not.

**Reference style Text** (Only within the text): All citations in the text should refer to:

1. Single author: the author's name (without initials, unless there is ambiguity) and the year of publication;
2. Two authors: both authors' names and the year of publication;
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## **PREPARATION OF THE FINAL PROJECT THESIS**

### **TYPING**

The style may be Courier or Times New Roman, or another equivalent word processor style. The font size should be 12. Standard black font is used throughout the text. Color may be used in tables, figures, charts and diagrams. The style must be consistent throughout the thesis.

### **CORRECTIONS**

All corrections (including typographical errors) must be made prior to submission of the final version.

### **MARGINS**

The Printed Sheets shall have the following written area and margins:

Top Margin 15 mm

Head Height 3 mm

Head Separation 12 mm

Bottom Margin 22 mm

Footer 3 mm

Foot Separation 10 mm

Text Height 245 mm

Text Width 160 mm

When header is not used the top margin shall be 30 mm.

Left and Right Margins

The candidates shall have the options of single or double sided printing

☐ Single sided/odd number page (in double sided printing)

Left Margin 30mm

Right Margin 20 mm

☐ Double sided/ even numbered page

Left Margin 20mm

Right Margin 30mm

## **HEADER**

When the header style is chosen, the header can have the Chapter number and Chapter title on the page header.

## **SPACE AND INDENTATION**

The text of the thesis must be one and half spaced. All paragraphs begin indented five spaces from the left margin. The spacing of long quotations, footnotes, tables, bibliographies, captions, etc. should conform to the specifications of this document or conform to the style manual specified for a student's discipline.

## **PAGINATION**

**Preliminary pages:** The pages preceding the first chapter (title page, approval page, abstract, table of contents, etc.) are counted, however, the first page with the number printed on the page is the ABSTRACT. Preliminary pages are numbered consecutively using lower case Roman numerals (iii, iv, v...) centered ½ inch from the bottom of the page. The title, copyright, approval, dedication and acknowledgment pages are counted, but not numbered. The page numbering begins appearing on the Abstract page. DO NOT use punctuation marks with the Roman numerals.

**Text and reference pages:** Starting with the first page of the text, all pages are numbered; including the bibliography, appendices, and index. Pages are numbered consecutively in Arabic numbers (1, 2, 3...). The Arabic numbers used for text must be centered and ½ inch from the bottom of the page. Do not use punctuation marks before or after page numbers, do not use the word "page" followed by the number and do not use letter suffixes such as 10a, 10b, etc.

Plagiarisms: No plagiarism of any form will be allowed and thesis will be returned if found any.

**Important Notes :** Students are directed to check & verify the project report by their concern Guide/HOD before taking printout.

1. STUDENTS HAVE TO SUBMIT FOUR COPIES OF PROJECT REPORT. (One for project guide, one for department, one for college Authority, one for him/her. For example, suppose there are 4 members in a group, then they have to submit one copy for their guide, one copy for their department, one copy for college Authority and four copies for four students).
2. STUDENTS HAVE TO SUBMIT ONE CD. (contains: soft copy of project report, Implemented project & ppt presentation. CD must be leveled with students name & Roll numbers)

3.1 Binding. Final Project Report should be in Hard Book Binding (Rexine Binding) with good quality white executive bond paper of A4 size. The final hard bound copies to be submitted after the viva voce examination will be accepted during the submission of project report.

3.2 Front Covers.

- Full title of project report in 6 mm 22 point's size font properly centered and positioned at the top.
- Full name of the candidate in 4.5 mm 15 point's size font properly centered at the middle of the page.
- A 40 mm dia replica of the Institute emblem followed by the name of department, name of the Institute and the year of submission, each in a separate line and properly centered and located at the bottom of page.

3.2.1 Lettering

All lettering shall be embossed in gold.

3.2.2 Bound back

The degree, the name of the candidate and the year of submission shall also be embossed on the bound (side) in gold.

3.3 Blank Sheets

In addition to the white sheets (binding requirement) two white sheets shall be put at the beginning and the end of the project report.

3.4 Title Sheet

This shall be the first printed page of the project report and shall contain the submission statement: The Project Report submitted in partial fulfillment of the requirements of the Degree M.Sc., the name and Roll No. of the candidate, name of the Supervisor, Department, Institute and year of submission. Sample copy of the 'Title Sheet' is appended in the first page of this proforma.