MARUDHAR KESARI JAIN COLLEGE FOR WOMEN, VANIYAMBADI

PG AND RESEARCH DEPARTMENT OF BIOCHEMISTRY

CLASS : III B.SC BIOCHEMISTRY

SUBJECT CODE :

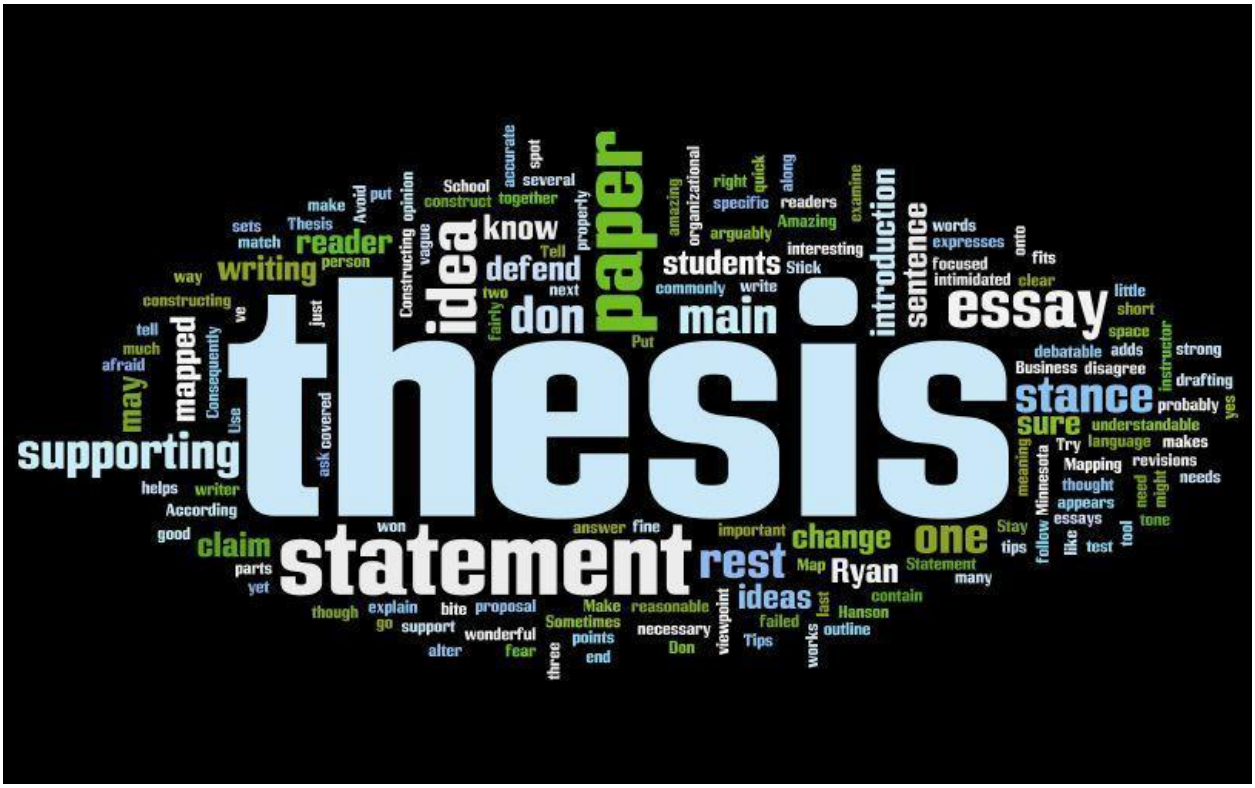
SUBJECT NAME : RESEARCH METHODOLOGY

SYLLABUS

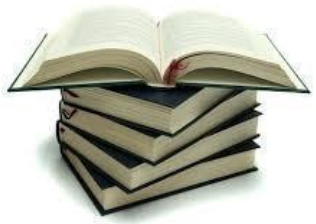
UNIT - IV (15 Hrs)

Thesis- Components of a thesis -format for writing thesis (Abstract, introduction, review of literature, materials and methods and discussion), reference styles. Useful search engines. E-resources (e-books/e-journals).

Guidelines to Scientific Writing – logical format for writing thesis



Compiled by
Dr. V. MAGENDIRA MANI, M.Sc., M.Phil., Ph.D., SET
Research Coordinator
PG and Research Department of Biochemistry
Marudhar Kesari Jain College for Women
Vaniyambadi-635 751
magendiramani@mkjc.in



Download at: https://tvuni.academia.edu/mvinayagam

Guidelines to Scientific Writing – logical format for writing thesis

Basic principles in scientific writing

ALL scientific writing should follow the **7 C's-rule**, *i.e.* scientific writing should be:

1. **Clear**: Unmistakable, not leading to confusion
2. **Correct**: Accurate, free from error
    a. Not prone to interpretation (explanation)
    b. Not prone to speculation (assumption)
3. **Complete**: Contain all necessary parts and information to be clearly understood
4. **Concise**: to the point, devoid of redundant information and words (avoid verbosity) **Appendix – 1**
5. **Conform** to the requirements set by the university (thesis)/journal (journal publication)/employer/… and to the standard conventions and basic principles in:
    a. Style: units, rules of abbreviations, literature citations etc.

    and

    b. Format: shape, size, general make-up of a publication
6. **Consistent**: uniform throughout the text in spelling, structure, style, format, layout, typography, etc.
7. **Common sense prevails**

Format of scientific writing

Thesis

There is no minimum or maximum number of pages for your thesis manuscript, but is also depends of the College/University etc. Don't try to fill pages and pages with text and words that have little to do with your thesis research. Instead, be concise and follow the rule of the 7C's, as explained previously.

Your thesis should have the following organization:

- Cover page **Appendix – 2**
- Title page (same as cover page but in black and white)
- Certificate **Appendix – 3**
- Declaration **Appendix – 4**

Now you start numbering your pages with roman numbers: i, ii, iii, iv, v, etc.

- Acknowledgements **Appendix – 5**
- Table of contents **Appendix – 6**
- List of tables **Appendix – 6**
- List of figures **Appendix – 6**
- Dedication (optional) **Appendix – 7**
- List of abbreviations etc. **Appendix – 8**
- Abstract

Now you start numbering your pages with Arabic numbers: 1, 2, 3 etc.

- Introduction
- Literature review (optional)
- Materials and Methods
- Results
- Discussion
- Conclusion
- Recommendation(s) **Appendix – 9**
- Literature cited
- References

Now you stop numbering your pages

- List of publications **Appendix – 10**
- List of scientific presented papers/workshop/seminar participated/presented etc. **Appendix – 11**
- Annexes (=plural of Annex)/Appendices (=plural of Appendix) **Appendix – 12**
- Index (optional, don't include an index for a short report of 10-20 pages)

Structure of your thesis

A research paper or thesis is a report of original findings organized into several sections according to a format that reflects the logic of a scientific argument. First the author states the purpose of the investigation, placing the work in a broader scientific context (Introduction). Then the procedure is described (Materials and Methods). Afterwards, the findings are presented (Results), interpreted (Discussion) and summarized (Conclusion).

Title and abstract

Both the title and the abstract are very important parts of your thesis, since these will be read most often by many readers. They serve two purposes for your readers:

1. To disclose the basic information of your research
2. To help readers decide whether or not to read the entire paper.

Title

The title should attract attention, but most important, it should be informative and concise. A good title indicates the main point of your study, so use:

- The most precise words possible (e.g. appropriate taxonomic information)
- Words that lend themselves to indexing the subject (your title is the first source for key words for indexing services).

On the other hand, be sure your title will make sense to someone not familiar with your subject. Provide adequate information, but don't make your title too long 8-12 words are a good range.

Example of good Vs bad titles

Bad title	Good title
Ecological Studies of Some Northern Lakes	Seasonal Algal Succession and Cultural Euthrophication in Three Northern Temperate Lakes
Effect of Hormones and Vitamin B on Gametophyte Development in a Moss	Effect of Hormones and Vitamin B on Gemtophyte Development in the Moss *Pylaisiella selwyni*
Studies on the Reproductive Biology of *Drosophila*, Including Sperm Transfer, Sperm Storage, and Sperm Utilization	Sperm Transfer, Storage and Utilization in *Drosophila*

Abstract

The abstract gives the reader a clear idea of the subject studied, it helps him to decide whether or not to read the full thesis/paper and it provides words for indexing.

The abstract is a **concise** (max. 1 page, condensation of the content of the full report by 95%), **complete** report of your work that can stand alone without further explanation. It should include:

- The objectives/hypothesis of the study and justification for conducting the investigation (What?, When?, Why?)
- The basic materials and methods used (How?)
- The main results obtained and significant conclusions that can be drawn

- A discussion of your results
- References
- Tabulated data
- Any abbreviations, unless they are understood when standing alone (e.g. “DNA”, “pH”, “USA”)

Keywords

Keywords are usually not required for a thesis, but most journals ask the author of a scientific article to include research keywords for indexing and possible readers can easily screen the content of the publication. If you decide to add keywords to your manuscript, put them right below the abstract (on the same page). **Three to five** keywords is enough. Keywords are the most pertinent informative words pertaining to the research done that did not occur in the abstract.

Introduction

=WHAT?

The introduction sets the stage for your scientific argument. It places the work you have done in a broad theoretical context and provides the reader with enough information to appreciate and understand the relevance your objectives. For example, if your thesis work is carried out in the framework of a larger research project; describe the project and your part in it.

The introduction should

- be informative
- explain the rationale for the study and your major objectives
- clearly identify the subject of your research
- state the hypothesis you are investigating or define the problem you are trying to solve
- bring the reader up-to-date on what has already been done
- provide background information on the research subject
- give a concise literature review (unless you have a separate "literature review" section) to orient the reader by summarizing pertinent literature in your field
- be written in the present tense

Literature review

In case of a thesis manuscript, a review of the relevant literature can be done in a separate section, but, in case of a scientific article, the literature review is generally included in the introduction. It should be written in the present tense.

The general rule on which tense to use is that you use the **past tense** when reporting your own findings (Materials and Methods, Results) and the **present tense** when discussing the published work of others (Introduction, Literature review, Discussion).

Materials and methods

= WHERE and HOW?

Your methodology creates the context for evaluating your data. How you took your samples and did your measurements, what controls you used, what variables you did and did not consider, which assumptions you made; all these things play an important role in the interpretation of the results.

This section should

- provide information such that your study can be duplicated/repeated by others
- Describe procedures and methods used, e.g. sampling strategy/frequency/location/date, experimental design, tools and sampling devices used, manipulation of the samples,

statistical analysis, complete taxonomic information of the organisms used, data quality assurance etc.

- where appropriate, use flowcharts to visualize the processing methods and handling of your materials
- be organized logically and orderly
- be written in the **past tense**

If you used a well-known method, name it and refer to the paper in which it is described. If you modified the well-known method, describe how and why you modified it.

Results

=WHAT DID YOU FIND?

This is the most important part of your thesis. The Results section should summarize the data, emphasizing important patterns or trends, and illustrate and support your generalizations with explanatory details, statistics, examples of representative or atypical cases and references to tables and figures. Use the **past tense**.

Do:

- Present your results in a logical and orderly fashion and use the same sequence as in the Materials and Methods section
- Be complete, but concise
- Make maximal use of tables and figures.
- One good graph can be worth a 1000 words.
- Give final and meaningful data only (no raw data), e.g. after statistical processing

Do NOT:

- Give the same results twice or more, e.g. in the text, a table and a graph, but chose the most appropriate way for presentation
- Omit data that you consider negative (in the sense that they don't comply to your hypothesis)
- Give primary (raw, unprocessed) data
- Interpret the data or draw major conclusions; this should be done in the Discussion and Conclusion sections, respectively.

Discussion

=WHAT DO ALL THESE RESULTS MEAN?

The Discussion section should

- Relate your results to your hypothesis: do your results prove that your hypothesis is correct or not, and how/why?
- Interpret the results with emphasis on the problem, question or hypothesis you put forward in the introduction
- Relate the data to their causes: *i.e.* why the data are what they are
- Relate your findings to those obtained by other researchers: whether they corroborate your results or whether they don't and support this with evidence

Be careful with extrapolating your results *too* broadly: avoid speculation and generalization

Conclusions

- What conclusions can you draw from your findings (these can be enumerated)?
- What is their significance with regard to the problem you tried to solve?
- State briefly any implications for practical applications or future studies if appropriate
- Eventually recommendations (if appropriate)

Many scientific journals do not publish a separate Conclusions section, instead, Discussion and Conclusions are combined, but for a thesis, keep them separated.

Acknowledgements

Briefly (max 1 -1.5 pages) thank people who helped you professionally, namely with:

- Sampling
- Reviewing your manuscript
- Statistical analysis
- Lab work (technicians)

- Providing access to specific equipment or facilities, not available in your laboratory (e.g. use of an oceanographic research vessel)
- Funding your research: mention the source of funding (e.g. This research was financed by a student grant from the National Science Foundation) or mention the project number or code when applicable
- If your work was part of a larger project, mention it as well as the financing or sponsoring authority.
- Only mention people who really contributed to your work.

For the thesis specifically, you should express your gratitude towards the people who guided you (promoter, co-promoter) and if you want, you can express your appreciation for the support of your family and friends.

References

Referring in the text

In your manuscript you will refer many times to the published studies of other authors or other sources of information. You should **refer to the original source** to acknowledge the source of all material that is not your own. In the text refer to the author's name (without initials) and year of publication. When you have multiple references to literature for the same finding in your text, refer in **chronological order**, then if there are two publications from the same year, use alphabetical order. If reference is made in the text to publications written by more than two authors the name of the first author should be used, followed by "*et al.*".

List of references cited

The list of references is an **alphabetically ordered** list of sources of information you have referred to, mostly manuscripts, scientific publications, but also websites, computer software, online databases etc.

- All references cited in the text are to be listed at the end of the report. The manuscript should be carefully checked to ensure that the spellings of authors' names and publication years are exactly the same in the text as in the reference list. Do not type author's and editor's names in capitals.

- The indication "*et al.*" that is used in the text (see previous section) should never be used in the list of references. In this list names of authors and all co-authors must be given in full.
- The list of references should be arranged alphabetically by authors' names, and chronologically per author. If an author's name in the list is also mentioned with co-authors, the following order should be used: (1) publications of the single author, arranged according to publication year (2) publications of the same author with one co-author, arranged according to publication year

Appendix/Appendices

- The Appendix contains related materials/data that provide additional information but are not essential for understanding the thesis/report. E.g. tables with raw data, intermediate statistical results, figures, photos.
- Common for a thesis, but scientific articles rarely have an appendix.
- Give only appendices if necessary, not to increase the number of pages of your thesis. In fact, you should not paginate your appendices.

Accessories to the text

Tables

Tables can be used for various kinds of information:

- To show precise numerical values
- to summarize or emphasize verbal information in compact form
- to organize numerical data in an easy and understandable way

A table should be:

- clear and easy to read
- understandable on its own
- orderly and logically organized
- in agreement with the rest of the text (*i.e.* use the same units/symbols etc. as in the text)

Tables consist of 6 major parts

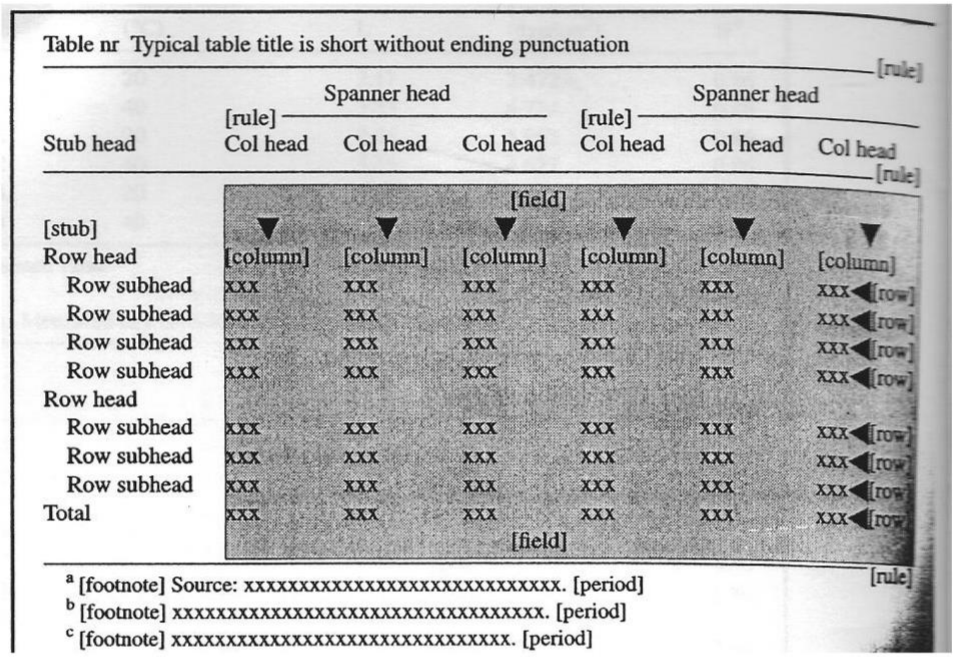
1. Caption above the table with the table number and the title
    - the title of each table should be unique
    - without a full stop at the end
2. Column heads
    - Each column must have a heading, describing the content of the column, followed by the unit between brackets, if appropriate and first letter capitalized (e.g. "Temperature (°C)")
    - Columns are used to display the dependant variables
    - To save horizontal space, headings should make use of abbreviations, symbols and other short forms (that are explained in the footnotes)
3. Spanners to gather common elements of adjacent column heads
    - If the units of adjacent columns are the same, put these in the spanner
    - A spanner never covers the stub column
4. Stub
    - contains the row heads, each starting with a capital letter
    - often represent the independent variables (e.g. information on experimental conditions)
5. Fields
    - Contain the data
    - Data must be aligned with its column heading
    - Numbers are aligned on the **decimal point** (do: 2.19 but don't do: 2,19) and numbers in the same column carry the same number of decimals
    - If the numbers contain ± (e.g. 96.6 ± 1.2), align on the ± sign
    - Empty cells in the field are indicated with a dash (-) or ND (no data, not detectable or not determined, then, explain the abbreviation in a footnote)
6. Footnotes
    - To explain symbols, abbreviations used in the table
    - Give the source of the data

Use superscript lower case letters to direct the reader to the appropriate footnote.

Table 1. Table title (descriptive and short, if not a sentence, no period)[a]

Column heading[b]	Column heading	Column heading	Column heading
Row heading	xx	xx	xxx.x
Row heading	xxx	xxx[c]	xx.x
Row heading	xx	xxx	xxxxx.x

[a] Footnote crediting source of information if reproduced, adapted, or based on another published table.
[b] Footnote explaining the column heading
[c] Footnote explaining a data nuance.



Major parts of a table (Source: Scientific Style and Format. The CBE Manual for Authors, Editors and Publishers, 1994. The Council of Biology Editors, 6th Edition, 825 pp.)

Some tips:

- 3 full width horizontal lines: (1) to separate the caption from the table, (2) to separate the headings from the fields and (3) to separate the table from the footnotes
- The use vertical lines is not recommended
- Try to fit a table on 1 page (you can change the page orientation), if it doesn't work out, continue on the next page and give as caption: "Table 2. Continued" (without title) and repeat the column headings
- Centre your tables on the page
- Tables should be put as closely as possible after being referred to in the text for the first time

Example 1 (completely fictive data):

Table - Percentage survival of different organisms undergoing different salinity and temperature treatments

	Treatments							
	Salinity (ppt)				Temperature (°C)			
Organism	20	30	40	50	15	20	25	30
Asterias rubens	70.6	80.9	95.6	20.4	45.8	90.4	44.6	21.6
Actinia acticans	60.7	ND[a]	50.2	33.9	67.9	23.4	24.5	80.6
Rubella vulgaris	59.7	29.4	89.3	99.5	22.4	90.2	32.7	78.5

[a]Not Determined.

Example of a badly designed and well-designed table

Badly designed table

Table xx Measured and calculated values of KA series samples

Sample	Temperature (°C)	L	FC index (dyn/cm^2)	W^a
KA-100	20	2.17	3.472	0.86
KA-100	40	3.53	4.774	0.86
KA-102	20	2.04	5.962	0.86
KA-102	40	3.46	4.627	0.86
KA-104	20	1.86	8.388	0.86
KA-104	40	3.29	5.981	0.86

[a]Calculated value.

Well-designed table

Table xx Measured and calculated values of KA series samples

Sample	L	FC index (dyn/cm^2)	W^a
KA-100			
20 °C	2.17	3.472	0.86
40 °C	3.53	4.774	0.86
KA-102			
20 °C	2.04	5.962	0.86
40 °C	3.46	4.627	0.86
KA-104			
20 °C	1.86	8.388	0.86
40 °C	3.29	5.981	0.86

[a]Calculated value.

Figures

Some considerations:

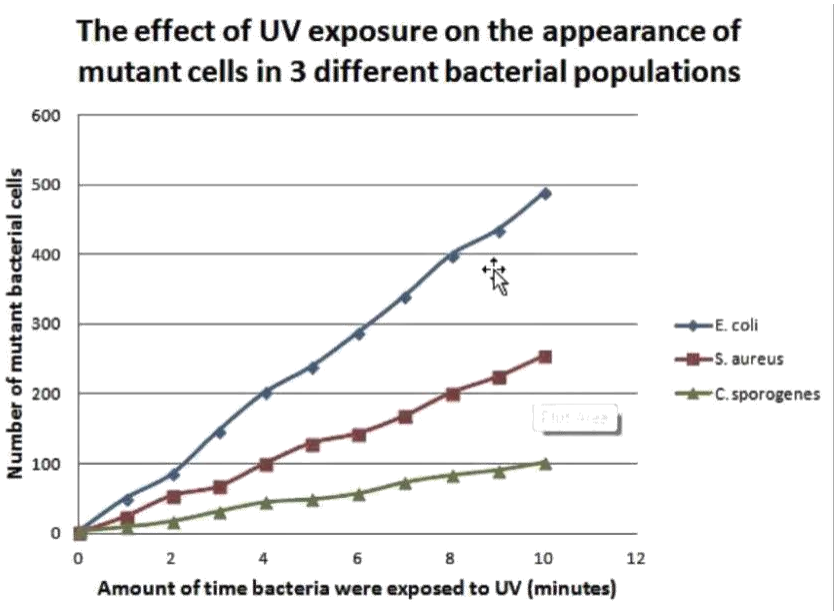
- Captions should be put below the figure
- Figures should be self-explanatory
- Figures should be placed as closely as possible after being referred to in the text for the first time
- Use the same abbreviations as used in the text and the tables

Graphs

Are used to represent data for which trends or proportions are important characteristics.

General considerations:

- Make efficient use of colours (*e.g.* in the effect of UV exposure on the appearance of mutant cells in three different bacterial populations, the blue line represents the absorption spectrum of the E-coli and the brown line represents the absorption spectrum of the S. aureus, green line represents the absorption spectrum of the S. sporogenes.
- Be consistent in the font type used in your graphs (preferably the same as the text)
- Use the simplest possible form (pies, bars, lines…) and the most appropriate form (e.g. in figure given below a line graph is chosen to represent continuous data)

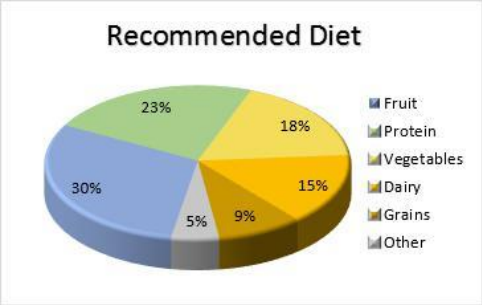


Line graphs

- To represent trends, continuous data
- Limit the number of curves to 3-5 curves and identify the curves clearly with symbols (eg. ◊, □, ○).
- Plot the independent variable on the X-axis and the dependent variable on the Y-axis
- Label all axis carefully and show the units of measure
- Use ticks and sub ticks to divide the axis so that you don't overload it with numbers
- Use whiskers for showing standard deviations of point measurements (eg. above **Error! Reference source not found.**)

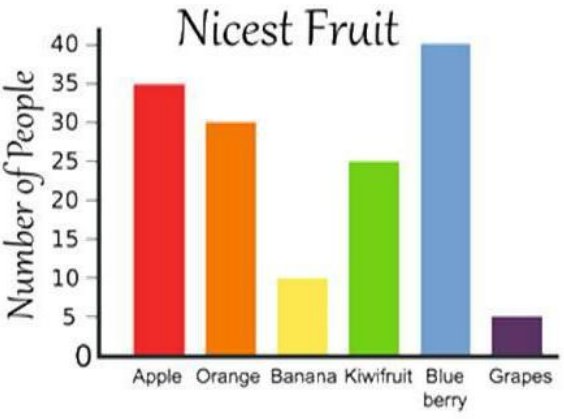
Pie charts

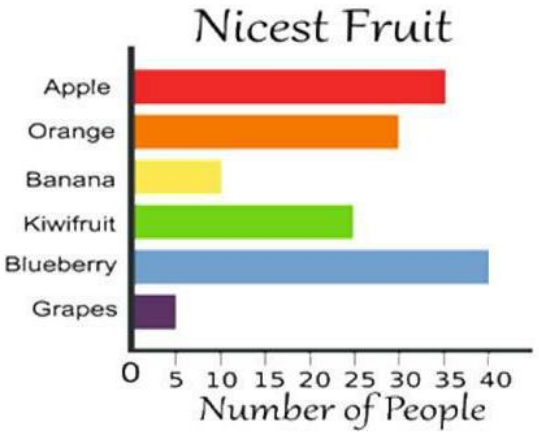
- Are well suited to represent proportions
- Example given in recommended diet given below.



Bar graphs

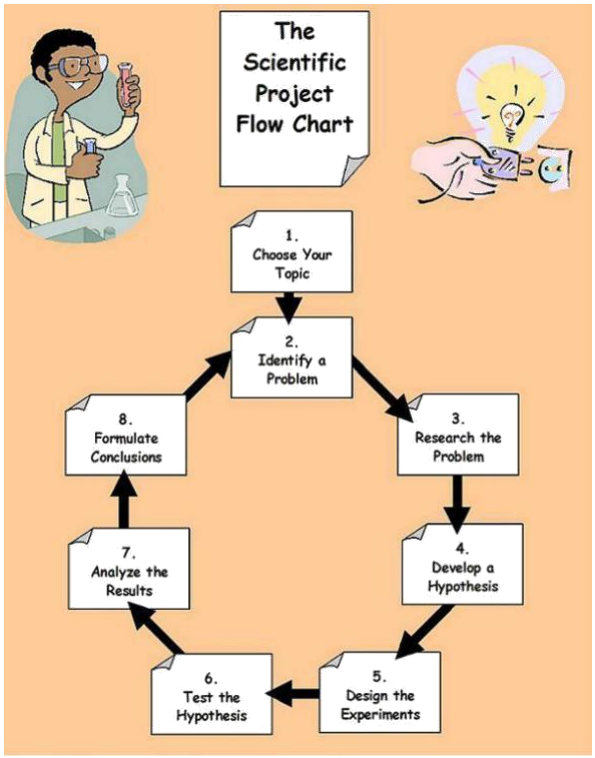
- Can be presented for data collected at even or uneven intervals
- Bars should be wider than the spaces between them
- Use whiskers for showing standard deviations of point measurements (eg No of people like nicest fruits given below.





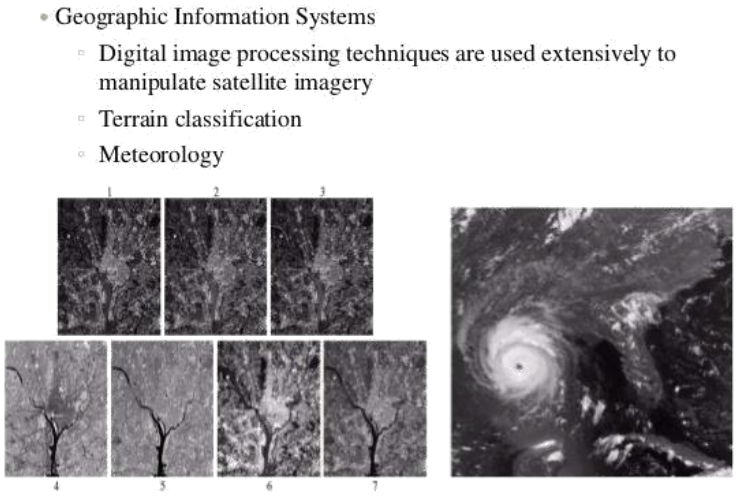
Flowcharts

Are visual aids to understand complex concepts or procedures, experimental set-ups etc.



Photographs

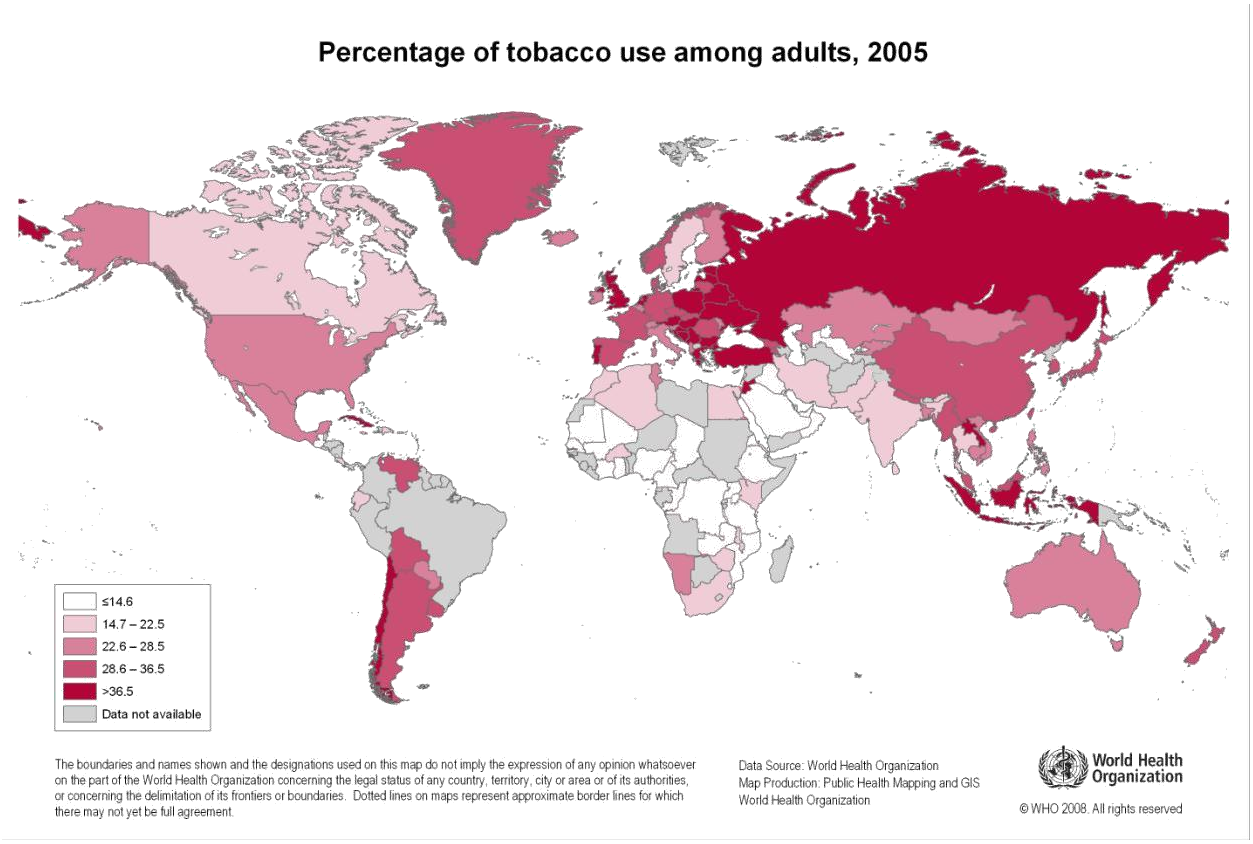
Are used to illustrate the organism under study, the study site, the apparatus used etc



Maps

Should contain (minimally):

- A North arrow
- A scale bar



Appendix 1: Verbosity

Source: Scientific Style and Format. The CBE Manual for Authors, Editors and Publishers, 1994. The Council of Biology Editors (now Council of Science Editors), 6th Edition, 825 pp. (ISBN: 0-521-47154-0).

A text with unneeded words and phrases slows the reader, and they should be eliminated. A phrase such as "it is interesting to note that" adds no information and only delays getting to the point of the sentence. Expressions such as "It is reported by Smith that. . :' can be shortened, for example, to "Smith reported that. . .". Many such widely used wordy phrases can be shortened to simpler forms.

[Wordy]	[Concise]
a majority of	most
a number of	few, many, several, some
accounted for the fact that	because
along the lines of	like
an innumerable number	innumerable, countless, many
of an order of magnitude	10 times
are of the same opinion	agree
as a consequence of	because of
as far as our own observations are concerned, they show	we observed
ascertain the location of	find
at the present moment, at this point in time	now
bright green in colour	bright green
by means of	by, with
caused injuries to	injured
completely filled	filled
[We] conducted inoculation	inoculated
definitely proved despite the fact that	proved although
due to the fact that	because, due to
during the course of	during, while
during the time that	while, when
fewer in number	fewer
for the purpose of examining	to examine
for the reason that	because

future plans	plans
give rise to	cause
goes under the name of	is called
has the capability of	can, is able
if conditions are such that	if, when
in a satisfactory manner, in an adequate manner	satisfactorily, adequately
in all cases	always, invariably
in case	if
in close proximity to	near
in connection with	about, concerning
in [my, our] opinion it is not an unjustifiable assumption that	[I. We] think.
inorder to	To
in the course of	during, while
in the event that	if
in the near future	soon
in the vicinity of	near
in view of the fact that	because
is in a position to	can, may
it has been reported by	Jones reported
Jones it is believed that	[omit]
it is often the case that	often
it is possible that the cause is it is this	the cause may be this
that it is worth pointing out that it would	note that
thus appear that	apparently
lacked the ability to	could not
large amounts of	much
large in size	large
large numbers of	many
lenticular in character	lenticular
located in, located near	in, near
masses are of large size	masses are large, large
necessitates the inclusion of	masses needs, requires so
of such hardness that	hard that

on account of	because
on behalf of	for
on the basis of	from, by, because
on the grounds that	because
original source	source
oval in shape, oval-shaped	oval
owing to the fact that	because, due to
past history	history
plants exhibited good	plants grew well
growth prior to [in time]	before
referred to as	called
results so far achieved	results so far, results to date
round in shape	round
serves the function of being	is
smaller in size	smaller
subsequent to	after
take into consideration	consider
the fish in question	this fish, these fish
the question as to whether	whether
the tests have not as yet	the tests have not
the treatment having been performed	after treatment
there can be little doubt that this is	this probably is
through the use of	by, with [not "via"]
throughout the entire area	throughout the area
throughout the whole of the experiment	throughoutthe experiment
two equal halves	halves
was of the opinion that	believed
with a view to getting	to get
with reference to	about [or omit]
with regard to	about, concerning
with the result that	so that

Appendix – 2 (COVER PAGE OF THE THESIS)

An informative and concise title in a font of your choice

(TITLE)

Thesis submitted to XXXXXXX University

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY IN BIOCHEMISTRY

By

XXXXXXXXXXX (NAME., M.Sc., M.Phil.,)

Under the Guidance of

XXXXXXX (NAME)., M. Sc., M.Phil., Ph.D.,

EMBLEM

PG & RESEARCH DEPARTMENT OF BIOCHEMISTRY,

XXXXXXXXXXXXXXXXXX NAME OF THE UNIVERSITY/COLLEGE

XXXXXXXXXXXX ADDRESS

INDIA.

MONTH & YEAR – 2016

Appendix – 3 (CERTIFICATE)

XXXXXXXXX
Assistant Professor,
PG & Research Department of Biochemistry,
Islamiah College (Autonomous),
Vaniyambadi,
Vellore District – 635751,
Tamilnadu, India.

Phone: xxxxxxxx (Off); +xxxxxxxxx (Cell); Fax: xxxxxxxxxx (0ffice); Email: xxxxxxxxxxxx

CERTIFICATE

This is to certify that the thesis entitled **"XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"** submitted to **XXXXXXXXXXXXX University** for the award of degree of **Doctor of Philosophy in Biochemistry** is a bonafide research work carried out by **XXXXXXXXXXXXXXXXXXXX**., **M.Sc., M.Phil.,** under my guidance and supervision and the thesis has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or any other similar title, in this or any other University or institution of higher learning.

(XXXXXXXXXXXXX)

(Supervisor)

Place :

Date :

Appendix – 4 (DECLARATION)

V. Magendira Mani
Assistant Professor,
PG & Research Department of Biochemistry,
Islamiah College (Autonomous),
Vaniyambadi,
Vellore District – 635751,
Tamilnadu, India.
magendiramani@rediffmail.com.

Phone: xxxxxxxx (Off); +xxxxxxxxx (Cell); Fax: xxxxxxxxxx (0ffice); Email: xxxxxxxxxxxx

DECLARATION

I declare that the thesis entitled **"XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"** submitted by me for the degree of Doctor of Philosophy is the record of work carried out by me during the period from 2012 to 2016 under the guidance of **XXXXXXXXXXXXXX., M.Sc., M.Phil., Ph.D.,** Principal and Head, Department of Biochemistry, XXXXXXXXXXXXX, XXXXXXXXXX, India, and has not formed the basis for the award of any degree, Diploma, associateship, fellowship, titles in this or any other University or other similar institution of Higher learning.

(XXXXXXXXX)

Place :

Date :

Appendix – 5 (ACKNOWLEDGMENT)

First and foremost I would like to express my gratitude and heartiest deep-felt thanks to **almighty GOD**, the creator of the mankind for giving me the opportunity to carry on research and making all my paths free of obstacles. I thank **almighty GOD** for his blessings as without the will of **almighty GOD** the completion of my work would not have been possible.

I would like to take this opportunity to acknowledge my indebtedness to my supervisor **XXXXXXXX., M.Sc., M.Phil., Ph.D**., Principal and Head of the Department of Biochemistry, **XXXXXXXXXXX**, for his exceptional love, encouragement, deep interest, valuable suggestions, critical comments, vigilant guidance, constant encouragement, gentle and caring attitude throughout my research period.

My parents deserve special mention for their inseparable support and prayers. My Father, **XXXXXX**, in the first place is the person who put the fundament, my learning character, showing me the joy of intellectual pursuit ever since I was a child. My Mother, **XXXXXX**, is the one who sincerely raised me with her caring and gentle love. I owe my deepest gratitude to my Sister **XXXXXXX** M.Sc., and Brothers, **XXXXXXX** and for their sacrifices, unconditional support and prayers thanks for being supportive and caring siblings.

Last but not least, I was extraordinarily fortunate in have my wife **XXXXXXX.,** M.A. XXXXXX., she has lost a lot due to my continuous engagement in research. Without her encouragement and understanding it would have been impossible for me to finish this work.

I express my gratitude to all persons who have contributed either directly or indirectly to the compilation of this study. **(XXXXXXXX)**

Appendix – 6 (TABLE OF CONTENTS)

List all headings and subheadings with page numbers

Indent subheadings

It will look something like this:

List of Figures

List page numbers of all figures.

The list should include a short title for each figure but not the whole caption.

List of Tables

List page numbers of all tables.

The list should include a short title for each table but not the whole caption.

Appendix – 7 (DEDICATION)

Dedicated

to

my

Beloved Family members

& Friends

Appendix – 8 (LIST OF ABBREVIATIONS)

%	-	Percentage
µg	-	Microgram
µmoles	-	Micromoles
•OH	-	Hydroxyl radical
AD	-	Alzheimer's disease
ANOVA	-	Analysis of variance
ASD	-	Autism spectrum disorders
B.W.	-	Body weight
WHO	-	World Health Organization
α	-	Alpha
β	-	Beta
γ	-	Gamma
µm	-	Micrometre
UV	-	Ultraviolet
v/v	-	Volume/Volume
w/v	-	Weight/volume
w/w	-	Weight/weight

Appendix – 9 (RECOMMENDATIONS)

Recommendations

- Include when appropriate (most of the time)
- Remedial action to solve the problem.
- Further research to fill in gaps in our understanding.
- Directions for future investigations on this or related topics.

Appendix – 10 (LIST OF PUBLICATIONS)

S. No	Research article Publication	Journal	Month/ Year	Impact factor value
1	Pyrethroid Deltamethrin induced developmental neurodegenerative cerebral injury and ameliorating effect of dietary glycoside Naringin in male Wistar rats. Volume 4, Issue 1, January–March 2014, Pages 1–8. doi:10.1016/j.biomag.2013.11.001.	Biomedicine and Aging Pathology	Jan 2014*a	2.367
2	Naringin modulates the impairment of memory, anxiety, locomotor, and emotionality behaviors in rats exposed to deltamethrin; a possible mechanism association with oxidative stress, acetyl cholinesterase and ATPase. Volume 4, Issue 4, Oct - Dec 2014, Pages 527–533. doi:10.1016/j.bionut.2014.08.006.	Biomedicine and Preventive Nutrition	Dec 2014*b	2.512
3				
4				
5				

Citation index

***a this work was cited in the Journal of Molecular Neuroscience – by Yassine Chtourou *et al*., 2015 (April).**
***b this work was cited in the Journal of Neurotoxicology and Teratology– by Hanan *et al*., 2015 (July).**
***b this work was cited in the Journal of Gene – by Wei Liu *et al*., 2016 (February).**
Reference: https://scholar.google.co.in/citations?user=WRe7INoAAAAJ&hl=en

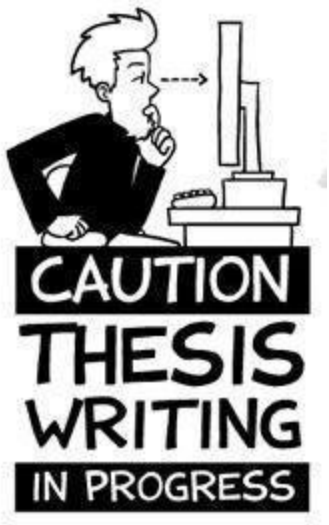
Appendix – 11

PAPER PRESENTED IN SEMINAR/ CONFERENCE

S. No	Title of the paper	Paper presented in Seminar/ Conference	Month/ Year
1	***"Pyrethroid Pesticide Poisoning - Cognitive Brain & Issues"*** ICMR sponsored national level seminar on *"Cognitive Brain & Issues" – (CBIS -2014)*.	Department of Biochemistry, Indo American College, Cheyyar.	Apr 2014 (Won first prize)
2	***"Pyrethroid Deltamethrin Pesticide Poisoning - Cognitive Brain & Issues Phyto therapeutic approaches of Flavonoid naringin"*** UGC Sponsored national level seminar on *"Nanomedicine and Phytotherapy - Current Scenario and Future Prospects" – (NMPT -2015)*.	Department of Biochemistry, Islamiah College (Autonomous), Vaniyambadi	Mar 2015 (Won third prize)

Appendix – 12 (APPENDICES)

- Include all your data in the appendix.
- Reference data/materials not easily available (these are used as a resource by the department and other students).
- Tables (where more than 12 pages).
- Calculations (where more than 12 pages).
- You may include a key article as appendix.
- If you consulted a large number of references but did not cite all of them, you might want to include a list of additional resource material, etc.
- List of equipment used for an experiment or details of complicated procedures.
- Note: Figures and tables, including captions, should be embedded in the text and not in an appendix, unless they are more than 12 pages and are not critical to your argument.



Dr. V. MAGENDIRA MANI, M.Sc., M.Phil., Ph.D., SET
Research Coordinator
PG and Research Department of Biochemistry
Marudhar Kesari Jain College for Women
Vaniyambadi-635 751
magendiramani@mkjc.in

USEFUL SEARCH ENGINES. E-RESOURCES (E-BOOKS/E-JOURNALS).

There are several useful search engines and e-resources for finding e-books and e-journals. Here are some popular ones:

Search Engines:

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