GRADUATION PROJECT



Guidelines and Forms

Objective

- Students have to spend the whole semester for this
- The main purpose of this is to help students apply all the knowledge that they have learned during the entire veterinary program to the real situation with practical or scientific approaches
- opportunity for students to become more familiar with the profession and their future careers.

Clinical Veterinary Elective

To enhance final year veterinary students' clinical skills through understanding the linkage between practice and research,

To use evidence-based medicine skills to approach and solve problems.

- Students are supposed to work at an animal clinic or animal farm, a wild-life organization, or in government offices of animal or veterinary public health and so on where they can join the everyday work in a particular position of a veterinarian. Then students have to focus in one specific case to be reported with evidence-based knowledge.
- The FASVM advisor and the advisor at the unit will help students establish the list of work and skills required.

Research Veterinary Elective

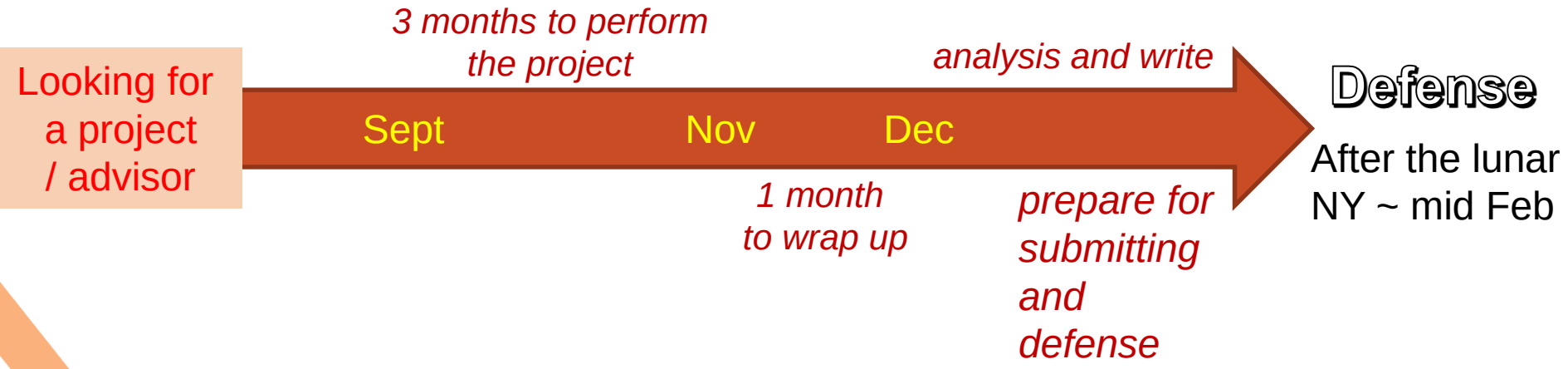
To introduce students to the principles and practice of research in the field of veterinary science through the implementation and presentation of a research project, including data collection, analysis and interpretation, preparation of results in a format suitable for submission for publication and as an oral abstract presentation.

- APVM office would help students look for available proposals and advisors. However, students are encouraged to contact lecturers or researchers within the FASVM or elsewhere, who are working or experts in the field of their interest for a research proposal.
- When students join a study in an external institute, a second advisor in that institute would be required. Students have to discuss with both advisors on the details of research project. After having the research topic, students should inform APVM office the name of topic and the name of the advisor(s).

The important differences between these electives are

- Research Veterinary Elective should have a very specific research question, hypothesis in a specific area/ topic. It needs a coherent statistical design to have a good data collection and statistical analysis to have final answer directly to the question
  - Such as: is the prevalence of a specific pathogen high, a new product can increase immunity capacity after vaccination
- Clinical elective: More focus on the practice and the case is just a routine work but closely observed and collect data to give own comments

General Instruction



TimeLine

General Instruction

- 2 copies of final written report with signature of advisors have to submit to the office 2 wks before the defense (time will be announced)
- Student prepare ppt for presentation (10-15 min.)
- 1 week before the defense, the department will organize a dry-run session to practice the defense (advisor will notify)

General Instruction

- Final score
  - Advisor
  - Reviewer
  - 3 committee members

Contents of written report

- Format as recommended (Template files)

Clinical Veterinary Elective

- Cover pages/preliminaries
- **Main report**
- Supplementary
- *Self-evaluation sheet with signature of unit/local advisors*
- A CV and motivation letter

Research Veterinary Elective

- Cover pages/preliminaries
- **Main report**
- Supplementary
- *A draft of a scientific paper ready to be submitted*
- A CV and motivation letter

Main report

Clinical Veterinary Elective

- The preliminaries include
  - ✓ Cover page
  - ✓ Abstract
  - ✓ Acknowledgement
  - ✓ Table of Contents
  - ✓ List of Abbreviations
  - ✓ List of Tables and Figures

Main report

Clinical Veterinary Elective

- The main report (the chapters) contains three chapters
  - ✓ Chapter 1: General Introduction
  - ✓ Chapter 2: Main Work During the Stay
  - ✓ Chapter 3: Case Report

Main report

Clinical Veterinary Elective

- **Chapter 1: General Introduction (at leat 10 pages)**

✓ Introduction to topic/ working field at the unit

✓ Background: knowledge need for the topic

✓ introduction to the unit (farm, small animal clinic, organization, …) is given by describing the general information, responsibilities of the unit, how it works, how it is organized, and so on.

✓ Pages: 2-10-2

- For example, if you work at a clinic and the case will be skin disease, in the general introduction you need to mention
  - Important of skin disease
  - Knowledge of skin diseases: dermatology, pathogens, risk factor, prevention …
  - Introduction to the clinic: owner, location, establishment, # case per day …

Main report

Clinical Veterinary Elective

- **Chapter 2: Main Work During the Stay**

Explain in details all the work that students were responsible and what they have learned at the unit. Give discussion (and comments) about each work they have involved and discuss any possibility to improve the work.

At least 15 pages

- For example
  - Disinfection
  - Injection
  - Transfusion
  - Staining lesion

  List important works you did at the unit. They should be aligned with the self-evaluation sheet, but more detailed the procedures and also comments on those

Main report

Clinical Veterinary Elective

- **Chapter 3: Case Report**

From the work described in Chapter 2, pick up **case(s)** that students find to be special, typical, and/or interested.

Describe the entire story (of the case) including extra investigation done by the students themselves: the history (or background), diagnosis, how the problem was solved, the results, and conclusions/recommendations.

- Depending on the type of cases, this part can be different.
- Generally, it look like “method and material”, “result and discussion” of the research elective but simpler
- Describe: how to observe/define the case, how to treat, measure…, the result, and discussion
- Give a conclusion after the case report
- ~ 10 pages

For example, the case of skin diseases

- Case definition (1-2 page)
  - Time of observation
  - How to define the disease
  - How to classify: bacterial, fungal, nutritional case
- Case observation (1-2 page)
  - How to treat these cases
  - How to measure the recovery, effectiveness of treatment
- Result and discussion (6-8 page)
  - How many cases of skin diseases observed, percentage of each type
  - Mean, SD.. Value of measurement, graphs and tables
  - How do you think about the result: good or not, other author recommend?, how to improve …
- Conclusion (1 page)
  - Summary the case and any important ideas withdraw from the result of the case

Main report

Clinical Veterinary Elective

- The supplementary contains:

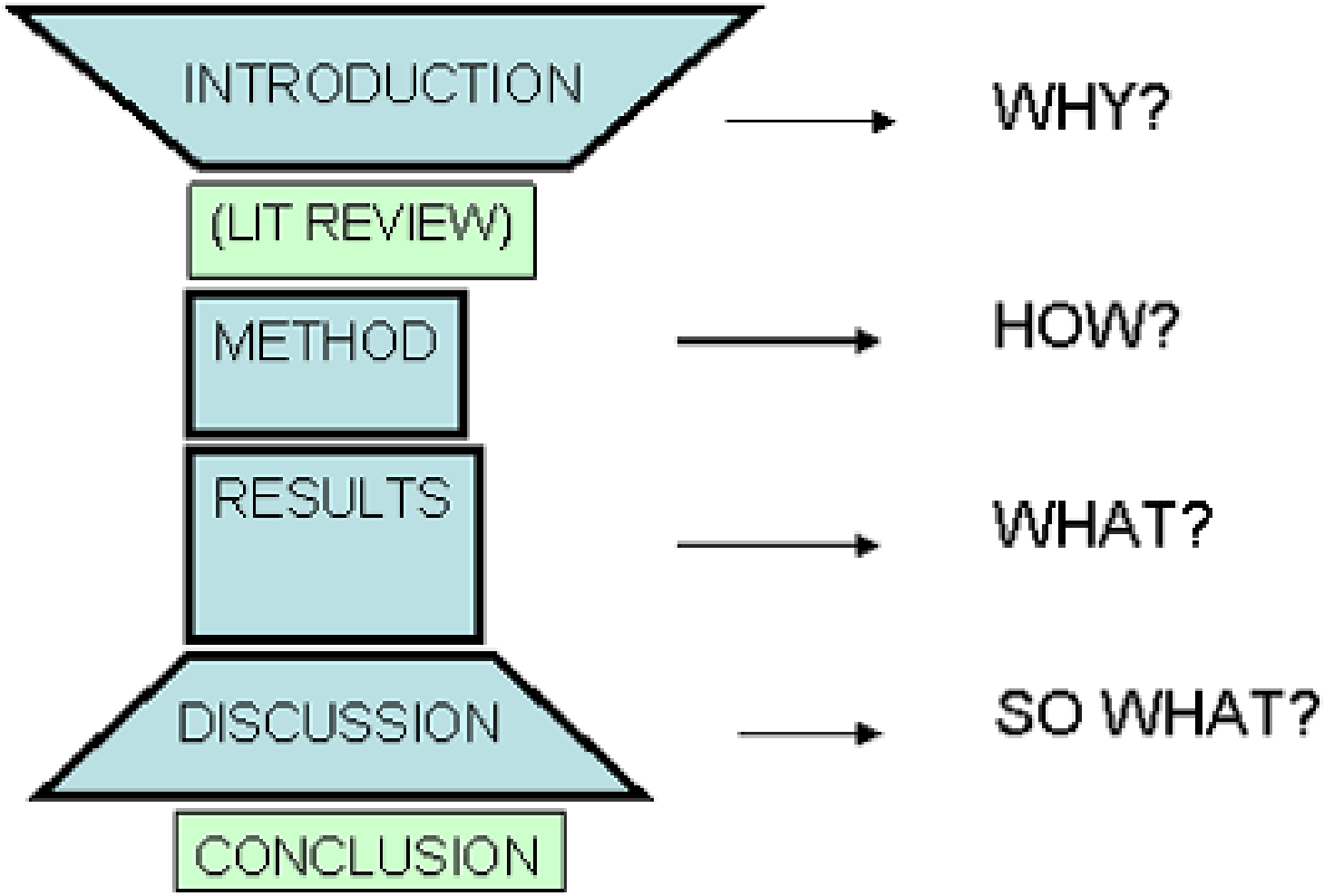
✓ References

✓ Appendices

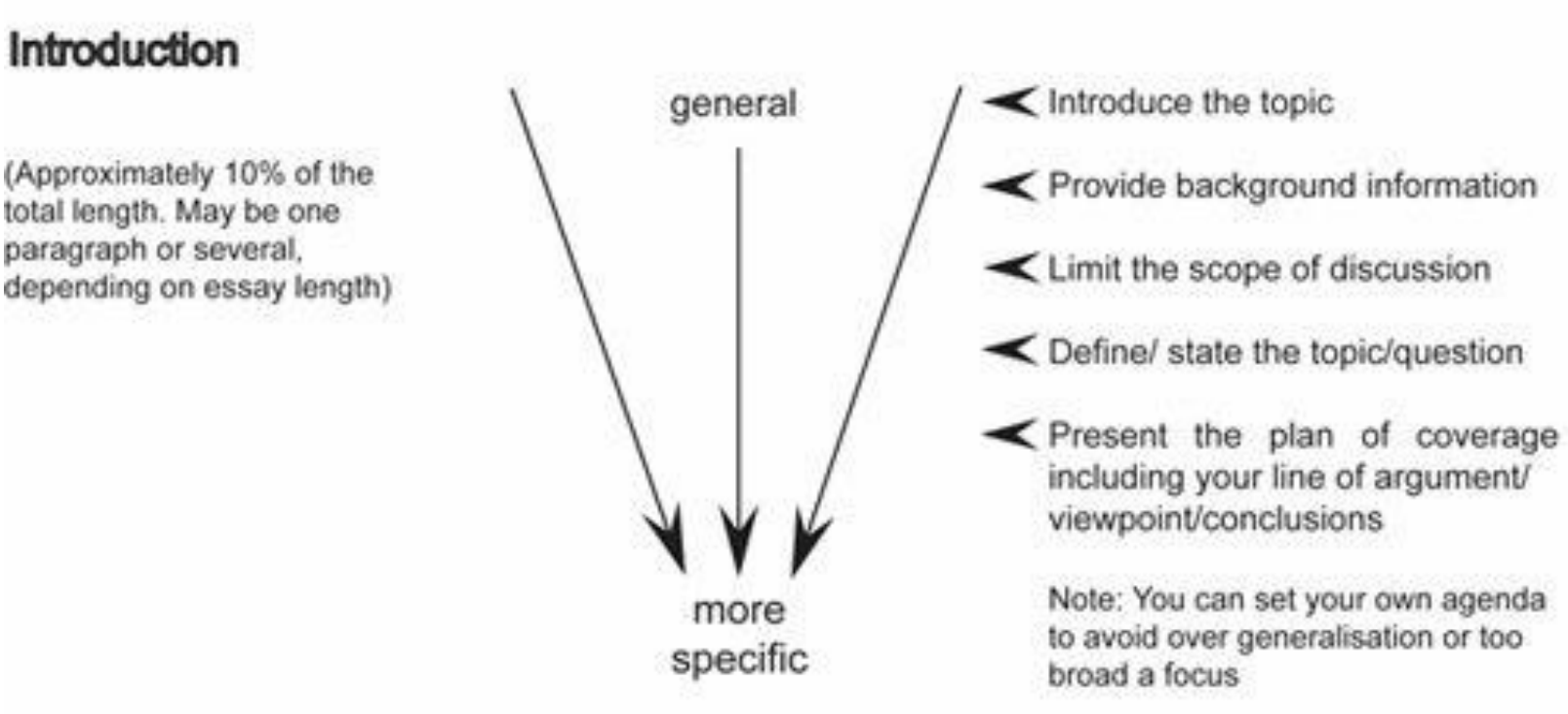
Main report

Research Veterinary Elective

- The preliminaries include
- The main report (the chapters) contains five chapters
  - ✓ Chapter 1: Introduction (2 pages)
  - ✓ Chapter 2: Literature Review (10 pages)
  - ✓ Chapter 3: Materials and Methods (5-10 pages)
  - ✓ Chapter 4: Results and Discussion (10 pages)
  - ✓ Chapter 5: Conclusions and recommendations(1 page)


INTRODUCTION
(LIT REVIEW)
METHOD
RESULTS
DISCUSSION
CONCLUSION
WHY?
HOW?
WHAT?
SO WHAT?

- Chapter 1: Introduction



- Chapter 2: Literature Review
  - Background of the topic
  - Knowledge on the questions, hypotheses
  - Previous studies related to the questions, hypotheses
  - Narrow down to the area/ location/ population that will be focused on to these questions, hypotheses

Chapter 3: Materials and Methods

- Order your procedures chronologically or by type of procedure and then chronologically within type of procedure using sub-headings, where appropriate, to clarify what you did.
- Use the past tense and the third person to describe what you did.
  - For example: “The sample was incubated at 37ºC for 3 days.” - NOT: “I incubate the sample at 37ºC for 3 days

- Describe your experimental design clearly, including the hypotheses you tested, variables measured, how many replicates you had, control group, treatment group, etc.

- Explain why each procedure was done. Reference may be made to a published paper as an alternative to describing the procedure.

- Identify the source of any specific type of equipment, a specific enzyme, organism, or a culture from a particular supplier, which is critical to the success of the experiment.
- Describe in detail any modifications to equipment or equipment constructed specifically for the study
- Precisely quantify measurements (all metric) and include errors of measurement.
- Describe the dates and the site where your field study was conducted

- Identify treatments using the variable or treatment name, (e.g., use "healthy donors" rather than "group 1").
- If required by the journal, mention the approval for the study by the relevant ethics committee(s) and the informed consent of the subjects.
- Describe statistical tests and the comparisons made;
- Show your Materials and Methods section to a colleague and ask whether they would have difficulty in repeating your study.

Chapter 4: Results and Discussion

- Determine which results to present by deciding which are relevant to the question(s) presented in the Introduction. The Results section does not need to include every result you obtained or observed.
- Organize the data in the Results section in either chronological order according to the Methods or in order of most to least important. Within each paragraph, the order of most to least important results should be followed.

- Determine whether the data are best presented in the form of text, figures, graphs, or tables.
- Summarize your findings and point the reader to the relevant data in the text, figures and/or tables. The text should complement the figures or tables, not repeat the same information.
- Provide a clear description of the magnitude of a response or difference. If appropriate, use percentage of change rather than exact data.

- Make sure that the data are accurate and consistent throughout the manuscript.
- Summarize the statistical analysis and report actual P values for all primary analyses
- Use the past tense when you refer to your results.
- Number figures and tables consecutively in the same sequence they are first mentioned in the text.
- Provide a heading for each figure and table.

- Organize the Discussion from the specific to the general: your findings to the literature, to theory, to practice.
- Use the same key terms, the same verb tense (present tense), and the same point of view that you used when posing the questions in the Introduction.
- Begin by re-stating the hypothesis you were testing and answering the questions posed in the introduction.
- Explain how your results relate to expectations and to the literature, clearly stating why they are acceptable and how they are consistent or fit in with previously published knowledge on the topic.

- Describe the patterns, principles, and relationships shown by each major finding/result and put them in perspective.
- Defend your answers, if necessary, by explaining both why your answer is satisfactory and why others are not.
- Discuss and evaluate conflicting explanations of the results. This is the sign of a good discussion.
- Discuss any unexpected findings.

- Identify potential limitations and weaknesses and comment on the relative importance of these to your interpretation of the results and how they may affect the validity of the findings. When identifying limitations and weaknesses, avoid using an apologetic tone. Give some evidence for confidence
- Summarize concisely the principal implications of the findings, regardless of statistical significance.
- Provide recommendations (no more than two) for further research.
- Explain how the results and conclusions of this study are important and how they influence our knowledge or understanding of the problem being examined.

Chapter 5: Conclusions

- Begin with a clear statement of the principal findings. Authors commonly make the mistake of hiding this message deep within the Conclusions.
- State your conclusions clearly and concisely. Be brief and stick to the point.
- Explain why your study is important to the reader.

- Prove to the reader, and the scientific community, that your findings are worthy of note. This means setting your paper in the context of
- Strive for accuracy and originality in your conclusion. If your hypothesis is similar to previous papers, you must establish why your study and your results are original (special).
- Conclude with how your testing supports or disproves your hypothesis. By the time you reach the end of your conclusion, there should be no question in the reader's mind as to the validity of your claims.

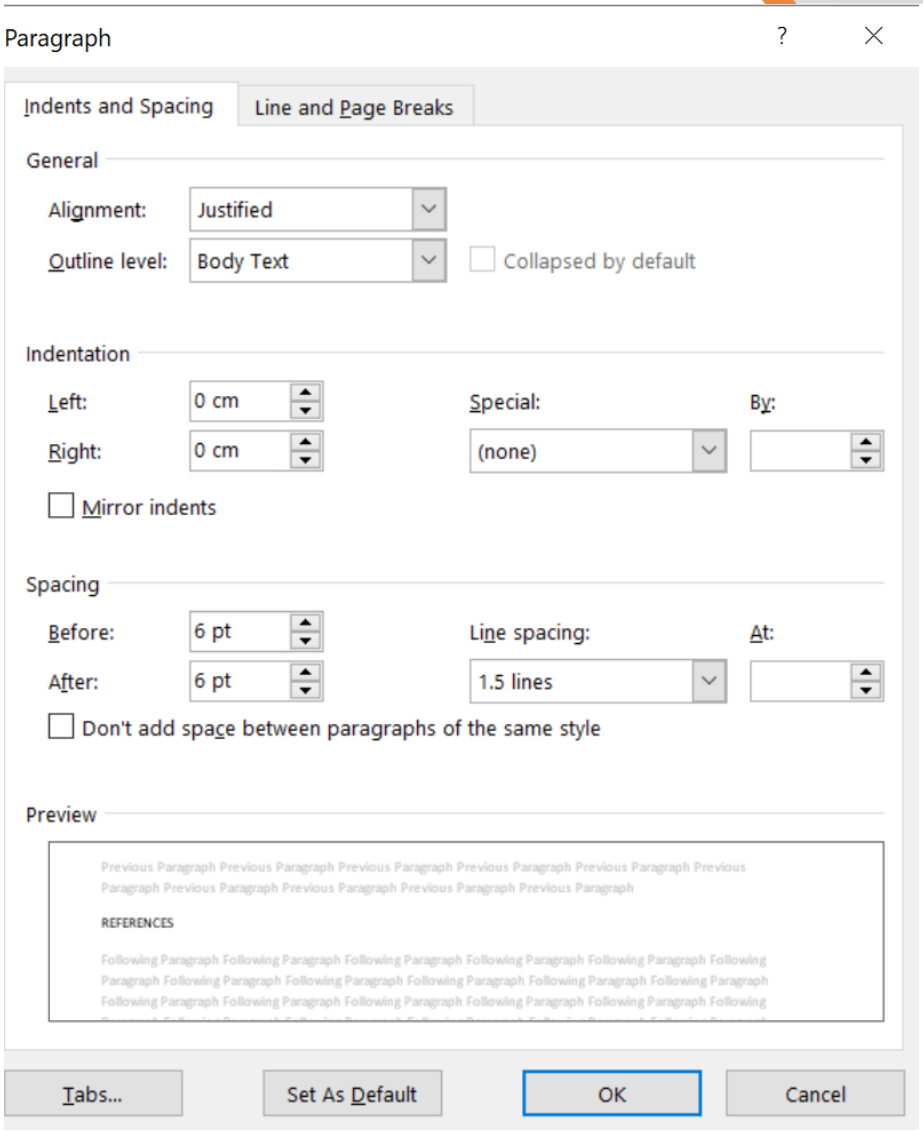
- **Do not r**ewrite the abstract. Statements with “investigated” or “studied” are not conclusions.
- **Do not i**ntroduce new arguments, evidence, new ideas, or information unrelated to the topic.
- **Do not a**pologize for doing a poor job of presenting the material. But recommend the further research
- **Do not i**nclude evidence (quotations, statistics, etc.) that should be in the body of the paper.

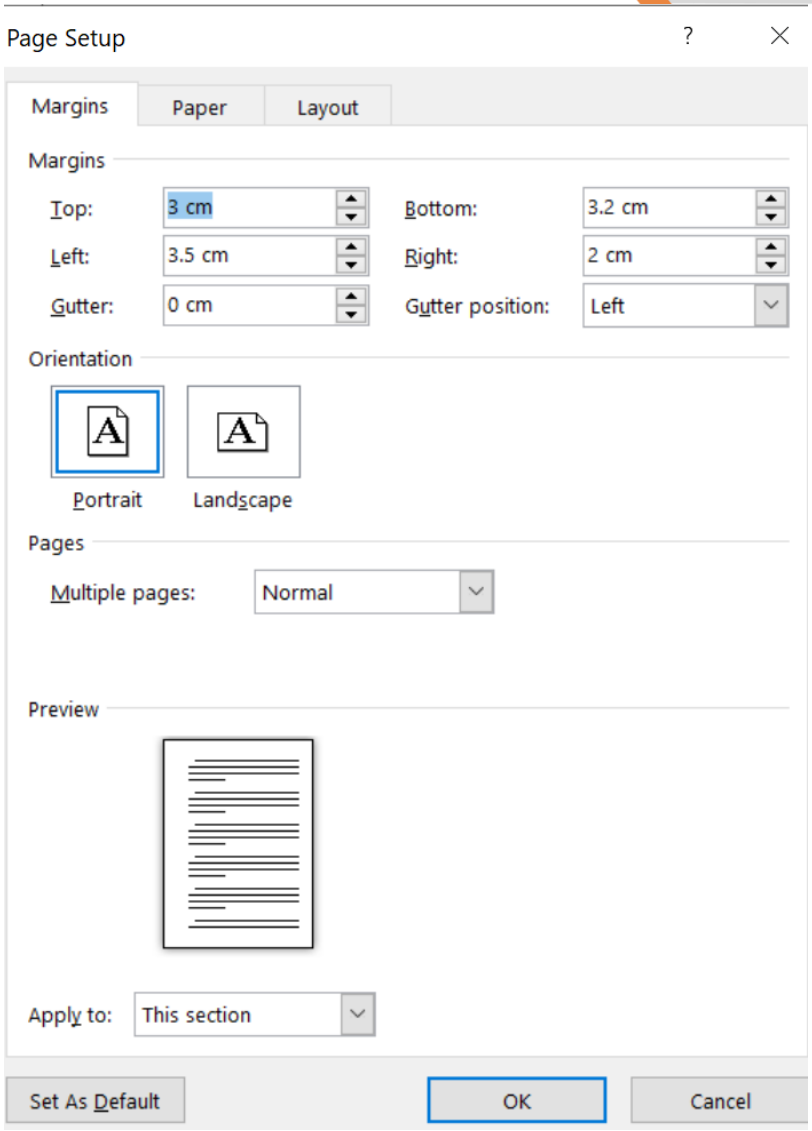
General Text Formatting for the Written Report

- The report must be written in American English, and saved in the format of word processing software.
- Text must be typed in Times New Roman font, size 13, and **1.5 line-spacing**.
- Paragraph: 6pt before and 6pt after
- The report contains three main parts: the preliminaries, the chapters (main body) and the supplimentaries.
- The chapters should be 20 – 25 A4 pages in length. Paragraphs must be fully **justified** (left and right alignment).
- Paper margins are guided in Table 1.1.
- The report is printed on one side of the papers.

Table 1.1 Margin settings for A4 size paper

Setting	A4 size paper		
	cm	inches	
Chapter name	5	2	The 5th enter
Top text	3	1.2	
Bottom	3.2	1.26	
Left	3.5	1.4	
Right	2	0.8	


Paragraph
Indents and Spacing
Line and Page Breaks
General
Alignment:
Justified
Outline level:
Body Text
Collapsed by default
Indentation
Left:
0 cm
Right:
0 cm
Special:
(none)
By:
Mirror indents
Spacing
Before:
6 pt
After:
6 pt
Line spacing:
1.5 lines
At:
Don't add space between paragraphs of the same style
Preview
Previous Paragraph Previous Paragraph Previous Paragraph Previous Paragraph Previous Paragraph Previous Paragraph Previous Paragraph Previous Paragraph Previous Paragraph Previous Paragraph
REFERENCES
Following Paragraph Following Paragraph Following Paragraph Following Paragraph Following Paragraph Following Paragraph Following Paragraph Following Paragraph Following Paragraph Following Paragraph Following Paragraph Following Paragraph
Tabs...
Set As Default
OK
Cancel


Page Setup
Margins
Paper
Layout
Margins
Top:
3 cm
Bottom:
3.2 cm
Left:
3.5 cm
Right:
2 cm
Gutter:
0 cm
Gutter position:
Left
Orientation
Portrait
Landscape
Pages
Multiple pages:
Normal
Preview
Apply to:
This section
Set As Default
OK
Cancel

- Page numbers are centered at the bottom of the page.
- Preliminary pages are numbered in lowercase Latin numerals (i, ii, iii, iv, v, …).
- The main body (the Chapters) and the supplementary pages are continuously numbered with Arabic numerals starting with page number 1.

- Header of chapter should be named after the chapter # (i.e. 3.)
- Should not be more than 3 levels
- Header should be in bold
- The first level header can be with size 14
- For example

3.1 Header level 1

3.1.1 Header level 2

3.1.1.1 Header level 3

- Name of table should be on the top of the table, and named Table #.#

  Margins and names of the tables: Align-left

  Text in the table: left or center

  Number: right

- All graphs, photos should be named Figure #.# and place at the foot of the figure,
  - *Margins and names of the figures: Align-left*

Reference

- ***Citing in the text***
  - "According to Smith (1988), …."
  - "If treatment is required, ciprofloxacin is one drug of choice (Alfredson and Korolick, 2007)."
  - "Campylobacter is a leading cause of bacterial diarrhea in the developed world (Zilbauer *et al*., 2008).
  - "Methicillin-resistant *Staph. aureus* has been isolated from bulk tank and quarter milk samples in Europe (Spohr *et al*., 2011; Kreausukon *et al*., 2012)."
  - "Organic milk quality, management, and animal health have been assessed in comparison with conventionally managed dairy farms (Zwald *et al*., 2004; Ruegg, 2009; Cicconi-Hogan *et al*., 2013a,b; Richert *et al*., 2013; Stiglbauer *et al*., 2013)."
  - *"Staphylococcus aureus* is a major mastitis-causing pathogen on dairy farms and has been found more frequently on organic dairy farms than conventional farms in recent studies (Ruegg, 2009; Cicconi-Hogan *et al*., 2013b).

Reference List

1. Armitage P. and Berry G. (1987). *Statistical Methods in Medical Research*. Blackwell Scientific Publications, Oxford, pp. 94–100, 411–416.

2. Butler J. E. (1981). A concept of humoral immunity among ruminants and an approach to its investigation. In: Butler J. E., Nielson K., Duncan J. R. (Eds.), *The Ruminant Immune System*. Plenum Press, New York, pp. 3–55.

3. Cicconi-Hogan K. M., Gamroth M., Richert R., Ruegg P. L., Stiglbauer K. E., and Schukken Y. H. (2013a). Associations of risk factors with somatic cell count in bulk tank milk on organic and conventional dairy farms in the United States. *J. Dairy Sci.* 96:3689–3702.

4. Cicconi-Hogan K. M., Gamroth M., Richert R., Ruegg P. L., Stiglbauer K. E., and Schukken Y. H. (2013b). Risk factors associated with bulk tank standard plate count, bulk tank coliform count and the presence of Staphylococcus aureus on organic and conventional dairy farms in the United States. *J. Dairy Sci.* 96:7578–7590.

5. Drancourt M. and Raoult D. (2002). rpoB gene sequence-based identification of Staphylococcus species. *J. Clin. Microbiol.* 40:1333–1338.

6. Green PN, Hood D, Dow CS. (1984). Taxonomic status of some methylotrophic bacteria. In Crawford RL, Hanson RS (ed), *Proceedings of the 4th International Symposium. American Society for Microbiology* (251-254). Washington, DC.

7. Ho Thi Kim Hoa (2008). *Arcobacter, what is known and unknown about a potential foodborne zoonotic agent* (Unpublished doctoral dissertation). Utrecht University, The Netherland.

8. Nguyen Thanh Hung (2012). *Ảnh hưởng của potassium diformate trong khẩu phần heo nái và heo con theo mẹ đến 60 ngày tuổi* (Unpublished master's thesis). Nong Lam University HCMC, Vietnam.

9. Tran Thi Quynh Lan, Nguyen Thi My Nhan, và Nguyen Thi Huyen (2013). Khảo sát sự hiện diện các nhóm và typ huyết thanh Salmonella phân lập từ phân heo và gà. *Tạp chí Khoa học Kỹ thuật Thú y*, XX(3):30-36.

10. USDA-ERS (USDA Economic Research Service). Organic production (2013). Accessed 19/11/ 2013, http://www.ers.usda.gov/dataproducts/organic-production.aspx#.UoucUZHFkpF.

Appendix 6
Student Self-Evaluation for Clinical Veterinary Projects

A. Poultry farms

Categories: *Practical Knowledge/ Practical Skill*

Please rate using the scale
1= Heard/Observed (Nghe nói/Quan sát), 2 =Some look-up/practice (có tìm hiểu/thực hành qua), 3 = mastered/well-practiced (nắm rõ/ có thực hành)

Nhóm gia cầm (gà/ vịt) có thể chọn loại hình hướng thịt/ giống/ đẻ

Learning Knowlelge and skills (Các nội dung cần thực hiện/ cần nắm vững)	Categories (Phân loại)	Student's self-evaluation (Sinh viên tự đánh giá)			Second Advisor (The farm Advisor) (Nhận xét của người hướng dẫn ở cơ sở)	
		1	2	3	Agree (Đồng ý)	Not agree (Không đồng ý; nhận xét)
Con giống và qui trình chăm sóc nuôi dưỡng căn bản cho từng loại hình	Kiến thức + thực tế					
Hiểu biết cơ bản về dinh dưỡng và điều kiện tiểu khí hậu cho gà	Kiến thức + thực tế					
Biết cách tính và hiểu ý nghĩa các thông số cơ bản đánh giá năng suất	Kiến thức + thực tế					
Thực hiện 1 qui trình vệ sinh, sát trùng cho chuồng, trại gà	Tay nghề					
Chăm sóc hàng ngày, hàng tuần cho gà con/thịt/giống/ đẻ	Tay nghề					
Cầm cột, bắt giữ gà con, gà lớn	Tay nghề					
Hiểu biết các tác nhân gây bệnh phổ biến trên gà	Kiến thức					

