

Case study guidelines

MSc in Industrial Analytical Chemistry

University of Sri Jayewardenepura

Introduction

A case study is an empirical inquiry that investigates a scientific phenomenon or an observation within its scientific context, especially when the boundaries between the phenomenon/observation and the scientific context are not evident. Most case study topics include some challenge or an assumption requiring additional research. The case study usually includes a short description of a problem or an idea that must be explored with the data available that lets you explore and find the best solutions.

Preparing the Case

The following guidelines will help you to prepare and understand the case study:

- 1) Select an appropriate topic for the case study

Select a topic for the case study that is related to chemical science and especially a topic where analytical chemistry plays a key role in problem-solving. The case must be developed, analyzed, and supported by high-quality and relevant literature. It is highly recommended to discuss the topic of the case study with the case study supervisor. Once the case study topic is finalized, inform the case study topic and name of the case study supervisor/s to the course coordinator with the expected date of completion.

- 2) Read and examine the case thoroughly

It is important to thoroughly examine the relevant and high-quality literature and understand the relevant facts and key problems related to the topic. The facts and key problems must be able to be explained within the context of chemistry. The student must thoroughly examine at least 15 to 20 indexed (Web of Science and Scopus) journal articles directly related to the topic before writing the case. Do not use unreliable sources such as newspaper articles and information available on websites and social media to collect information to develop the case. However, information available from trusted websites such as websites of the American Chemical Society, Environment Protection Agency, International Standards Organization, and World Health Organization, etc. can be referred to as sources of reliable facts and data. In addition, do not use articles published in predatory journals to develop the case study.

3) Focus on your analysis and case study development

Identify one or more key problems in the relevant field (literature) and try to understand their existence in a scientific context. Qualitatively and quantitatively evaluate the impacts of these problems on the overall understanding of the topic.

4) Uncover viable solutions/Changes needed

Once you have identified the key problems intended to be addressed in the case study, you have to find possible answers or solutions to the problem/s from literature, discussions with your case study supervisor and other knowledgeable people, and from your own experience and knowledge.

5) Select the best solution

The problems that you are trying to address in the case study might have more than one solution or answer. Out of all the possible solutions, consider the solution with strong supporting evidence, weigh the pros and cons of the solutions, and also consider whether the solution is realistic and achievable.

6) Drafting the case

Once you have gathered the necessary information, draft your analysis according to the following general format given below; however, the guidelines may differ depending on the specific topic of the case study. The supervisor uncorrected two (02) copies of the case study must be handed over to the coordinator for evaluation. Once the case study is evaluated and graded, a corrected hard copy of the case study must be submitted to the course coordinator with the supervisors' approval. Make sure that all the comments, corrections, and issues have been fully addressed before submitting the final hard copy. In addition, before handing over the hard copies for evaluation, make sure that the report is formatted to the given guidelines. Any document that is significantly deviated from the given format will not be evaluated and will be returned to the student.

Detailed instructions and sample pages

The following guidelines are formulated to assist students in properly compiling the case study report.

Your report should be formatted according to the following requirements:

Page size	A4
Margins	Left 1.25 inches (3.18 cm), others at 1 inch (2.54 cm)
Font	Times New Roman 12 pt in the body of the text
Font Color	Black
	Only accepted terms should be italicized. Example: <i>Homo sapiens</i>
Line spacing	1.5 throughout, except for figure and table captions. Paragraphs should be indented by 0.5 inches and justified
Page numbering	Except for the title page, all pages should be numbered at the bottom center of the page. Pages before the introduction should be numbered in Roman numerals. Pages starting at the introduction until the end of the Case Study should be numbered in Arabic numerals.

The Case Study report format

Cover Page	An example is given in page 7
Title Page	An example is given on page 9
Declaration	An example is given in page 10
Dedication	Optional
Acknowledgment	Limit to one page
List of Abbreviations	List all abbreviations used in the text in alphabetical order.
Table of Contents	Should comprise a concise list of all chapters, headings, and subheadings presented in the document and provide an organizational scheme for the reader. Please use the automatic table of contents generator associated with your word processor.
List of Tables	The Heading of tables presented in the text should be listed along with page numbers.
A list of Figures	Figures that are presented in the text should be listed here along with the page number(s) in which they appear.
Executive Summary	Should be in the range of 400 to 600 words and should not contain any graphical material. The purpose of this section is to give a brief understanding of the case being studied and the key points of your analysis.
Introduction	The introduction should provide the necessary background information for the reader to understand the significance of the case study. Relevant literature should be cited and must be up-to-date with key references published within five (5) years. Should be in the range of 600 to 1000 words.
Background	This section provides background information, and relevant facts discovered from the literature and reveals the most important issues in the literature. Thoroughly discuss the key facts and issues. Should be in the range of 750 to 1000 words.

Case Evaluation Outline the key issues you are focusing on in the case study and evaluate the key issues in the context of chemistry. It is necessary to thoroughly discuss the facts, data, and information that is widely accepted in literature and the facts, data, and information that is not well accepted by the majority or has issues or problems, or is interpreted by different means. Should be in the range of 1000 to 1500 words.

Proposed solution Provide a specific and realistic solution(s) or change needed to the issues that you have discovered in the case evaluation. Explain why the proposed solution/s was chosen to the issues raised by you. Support the given solution with solid evidence, such as fundamentals of science, supporting literature, and personal experience. Should be in the range of 1000 to 1500 words.

Recommendations Determine and discuss specific strategies for accomplishing the proposed solution. If applicable, recommend further action to resolve some of the issues raised by you. Should be in the range of 500 to 1000 words.

Reference The ACS style should be followed. References should be listed in numerical order as appearing in the text. The references in the body of the text should be indicated in superscripts starting from 1. At least 40 related articles from recognized publishers must be included in the Case Study.

- A journal article reference:
 1. Schibli, R.; Schubiger, A. P. Current use and future potential of organometallic radiopharmaceuticals. *Eur. J. Nucl. Med. Mol. Imaging* 2002, 29, 1 529-1 542.
- A book reference:
 1. Otwinowski, Z; Minor, W. *Methods in Enzymology: Macromolecular Crystallography, Part A*, New York Academic Press, New York, 1 997, vol. 276, pp. 307-326.
- Websites should be cited as footnotes with the date accessed.

More information is available at <https://pubs.acs.org/doi/full/10.1021/acsguide.40303>

Important Notes

- Throughout the document, due recognition should be given to previously conducted research. Plagiarism will not be tolerated. No word-to-word reproduction of material in textbooks, research papers, or websites with copyright will be tolerated. Any document, partial document, or phrase generated by Artificial Intelligence (AI) should not be used without permission. AI-generated tests will also be considered as plagiarized material. If the student is found guilty of Plagiarism, the necessary actions will be taken according to the guidelines and policies issued by the University of Sri Jayewardenepura and the Faculty of Graduate Studies of the University of Sri Jayewardenepura.
- The student should originally create all images and photos. No images from the internet or printed sources should be reproduced without permission.
- Standard SI units and significant figures should be used. The numeric and the unit should be separated by a space. Example: 5 mol
- Tables and axes of graphs should follow IUPAC recommendations.
- All figures and tables must be cited in the text and appear on the same page that the first mention of it is made in the text except when the above is deemed impossible.
- Figure resolution (> 300 dpi) and fonts in figures should be >10 pt in size. Figure and graph captions should be placed below the figure or graph while table headings should be placed above the table.

(A sample Cover Page format is given for the hard-bound cover page which could be used as a template. The title should be all uppercase except scientific names and Times New Roman 14 pt. bold)

TITLE

Full name of student

MSc/PGDip in Industrial Analytical Chemistry, University of Sri Jayewardenepura

University of Sri Jayewardenepura, Sri Lanka

MSc/PGDip in Industrial Analytical Chemistry, University of Sri Jayewardenepura

(A sample Title Page format is given which could be used as a template. The title should be all uppercase except scientific names and Times New Roman 14 pt. bold)

TITLE

A case study
submitted to
The Department of Chemistry of the
University of Sri Jayewardenepura
in partial fulfillment of the
requirement for the
Master of Science
in Industrial Analytical Chemistry

By

student's name

University of Sri Jayewardenepura, Sri Lanka

Month and Year

DECLARATION

I compiled this report to fulfill the requirement of the Department of Chemistry, University of Sri Jayewardenepura, Sri Lanka under the guidance of *name of the case study supervisor*, and has not been submitted elsewhere.

Student's name

Date of submission (Day/Month/Year)

Name, Affiliation, and the Signature of the Case Study supervisor/s

Name and the Signature of the Course Coordinator of the MSc in Industrial Analytical Chemistry

This document was compiled by Dr. Asitha Cooray, Coordinator of the MSc in Industrial Analytical Chemistry. If you need clarifications or need to report a mistake/error, please contact Dr. Asitha Cooray, atcooray@sjp.ac.lk / 077-7465392.

MSc/PGDip in Industrial Analytical Chemistry, University of Sri Jayewardenepura