

Criterion I: formal presentation

Biological investigations often require the support of referenced material, not only in the form of text or data, but also as diagrams or drawings. Care must be taken to supply references for illustrations taken from sources. Students must avoid the temptation to supply illustrations for their own sake. Illustrative material should only be included if it enhances the argument or supplies information that cannot be easily provided in another way. Original photographs, photocopies or downloaded images that are not labelled or put into the context of the investigation are unlikely to enhance the essay.

Biological investigations often result in large quantities of raw data. Large tables of raw data are best included in an appendix. Processed data that is central to the argument of the essay should be included in the body of the essay, as close as possible to its first reference.

Criterion J: abstract

For a biological investigation, the abstract must include the research question and a conclusion that directly relates to the research question. In addition, the description of how the research was conducted must include a description of the methodology and the scope of the study.

Criterion K: holistic judgment

Qualities that are rewarded under this criterion include the following.

- Intellectual initiative: Ways of demonstrating this in biology essays include the choice of topic and research question, and the use of novel or innovative approaches to address the research question.
- Insight and depth of understanding: These are most likely to be demonstrated as a consequence of detailed research and thorough reflection, and by well-informed and reasoned argument that consistently and effectively addresses the research question.
- Originality and creativity: These will be apparent by clear evidence of a personal approach backed up by solid research and reasoning.

Business and management

These subject guidelines should be read in conjunction with the “Introduction”, “Outline” and “Details—all essays” sections of this guide.

Overview

An extended essay in business and management provides students with an opportunity to carry out in-depth research in an area of personal interest relating to business and management. This is likely to be in the context of the Diploma Programme business and management course, but students may also want to consider issues that fall outside the scope of this. For example, they may want to undertake a detailed investigation into work relating to a specific regional/national context, or perhaps practical applications relating to the work of a particular management theorist. Whichever research area is chosen, it should be firmly rooted in the realms of accepted business and management theory.

The extended essay provides students with an opportunity to develop research skills by reviewing business theory, concepts and principles, and critically analysing how these have been put into practice in the business world and the resultant impact on business activity. This will involve broad and detailed research using a range of sources. Excessive reliance on a single type of source, such as a company’s annual report, is unlikely to give students sufficient scope or breadth in their analysis of the research question. The extended essay requires the application of business theory, tools and techniques to produce a coherent and structured analytical essay that effectively addresses the research question.

Choice of topic

Students should undertake an extended essay that uses the core principles of business and management as a basis for researching a particular topic. In their choice of topic, students are strongly advised to ensure they develop a research question that enables them to carry out relevant research and apply business theory, tools and techniques. It is important that the research question is sufficiently focused to allow adequate treatment within the word limit.

The following examples of titles for business and management extended essays are intended as guidance only. The pairings illustrate that focused topics (indicated by the first title) should be encouraged rather than broad topics (indicated by the second title).

- “What motivates employees? Can Herzberg’s motivation theory help explain the improvement in productivity at XYZ Ltd?” **is better than** “Have motivational techniques benefited XYZ Ltd?”.
- “How significant has the contribution of Just-in-Time production been in improving efficiency in the textile industry?” **is better than** “How effective are Just-in-Time production techniques?”.
- “Why has the practice of publishing environmental audits been adopted more widely in Country X than in Country Y?” **is better than** “Why do firms publish environmental audits?”.

The topic may be chosen because of an interest in issues raised in the classroom, aspects of a student’s own experience, or current events. The choice and treatment of the topic must, however, ensure that the student can address all the assessment criteria. An essay that is purely descriptive must be avoided: analysis and evaluation are critically important.

It may help in achieving this if the student further defines the topic chosen for study in the form of a research question, followed by a statement of intent that indicates which methodology is going to be used in answering the question. In this way, the approach to the topic chosen may be even further clarified. Some examples of this could be as follows.

Topic	Operations management
Research question	To what extent has the introduction of Total Quality Management (TQM) improved quality at ABC Ltd?
Approach	A review of how quality management techniques have changed with the introduction of TQM. Relevant indicators are selected for measuring quality and the data for ABC Ltd is collected. The way in which ABC Ltd have adapted their approach to managing quality, and the impact of this on the selected indicators, is analysed and evaluated.
Topic	Growth strategies
Research question	How effective has the joint venture between ABC Ltd and UBI Ltd been as a growth strategy?
Approach	A review from secondary sources of growth strategies available to a firm and joint ventures specifically. Relevant indicators are selected to quantify the impact of the joint venture on the growth of ABC Ltd and UBI Ltd. Relevant data is collected from the two businesses, and the findings are analysed and evaluated.
Topic	Financial performance
Research question	Why has the market capitalization of XYZ Plc increased more than the market capitalization of its competitor ABC Plc?

Approach	A review from secondary sources of factors affecting financial performance and selection of variables that may contribute to differences in market capitalization. Data is collected and a comparative analysis is made of the findings.
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Treatment of the topic

Students should use as the basis of their extended essay secondary data, supported, where appropriate, by primary research. The sole use of secondary sources will allow students access to all levels of the extended essay assessment criteria. (Note that this is the reverse of the approach required in the HL internal assessment component of the business and management course, where primary research takes precedence.) Students should apply the accepted theories, tools and techniques of the subject to the topic/research question chosen. These may be applied to an organization, industry or market in a particular region or country, or globally. Students should ensure that the treatment of the topic allows for an analytical approach.

It is important that the approach to all aspects of the essay is directly related to the research question and that the research carried out addresses the question. Topics researched should not be too broad in scope. The development of the essay must be related to the question directly and must not include information that is unnecessary. Strategic approaches should be encouraged and considered—for example, the effect of new technologies and cultural, international and ethical implications.

If primary research is carried out in relation to an organization, there is a need for tact, sensitivity to other people and respect of confidentiality.

A good extended essay will demonstrate the appropriate use and application of selected analytical tools, often supported by statistical data to assist the discussion and evaluation.

Some examples of analytical tools are as follows.

- Ansoff's Matrix
- Boston Matrix
- Break-even analysis
- Decision tree analysis
- Financial accounts and performance ratios
- Fishbone analysis
- PEST (LE) analysis
- Porter's generic strategies and five forces
- Position maps
- Statistical tables/charts/diagrams
- SWOT analysis

Students must ask probing questions and look at all relevant factors when considering the information obtained from their research. Information cannot always be accepted at face value. A critical approach, in which the skills of analysis and evaluation are displayed, is essential. Students should indicate unresolved questions, or new questions that have arisen from their study, in their conclusions.

An extended essay in business and management is a formal essay and, as such, should fully meet the assessment criteria for the organization and formal presentation of an extended essay. In addition, it should be remembered

that a business and management essay must be written in an objective style without personal bias. Observations and conclusions should be derived from the evidence and not based on any preconceptions of the student.

Frequent reference to the assessment criteria by both the supervisor and the student will help keep a sharper focus on the essay.

Interpreting the assessment criteria

Criterion A: research question

The research question can often be best defined in the form of a question. It may, however, also be presented as a statement, proposition or hypothesis for discussion. It must be specific and sharply focused. Topics or questions that consider broad areas of business and management theory may limit the possibility of effective treatment within the word limit and constrain performance on this criterion.

Criterion B: introduction

The introduction should relate the research question to existing subject knowledge: the student's personal experience or particular opinion is rarely relevant here. While it is important in the introduction to consider the theoretical business context for the essay, it is not the place for a full review or explanation of that theory. The introduction should consider why the question chosen is an important one for businesses/organizations and/or the managers of those businesses/organizations, and, therefore, why it is an important topic for investigation. The research question should be clearly set in a business and management context.

Criterion C: investigation

The range of resources available will be influenced by various factors, but above all by the topic chosen. Students should use secondary sources in the first instance. These may include the internet, textbooks and research literature/journals. They could also include materials sourced from a particular business or organization whose area of business is related to the topic chosen (for example, market research companies, industry analysts or individual business organizations). Statistical data may be valuable, although this is likely to depend on the nature of the topic/research question chosen. Sources for this might include the internet, government departments, business research organizations or industry analysts. Evidence can be conflicting and in need of explanation and analysis. The reliability of sources needs to be examined, and relevant information clearly and systematically presented. If students make use of internet-based sources, they should do so critically and circumspectly in full awareness of their potential unreliability.

Where primary research is used, it must be carefully planned to ensure that it will enhance the value of the research undertaken, and provide specific quantitative and qualitative analysis directly related to the research question.

Criterion D: knowledge and understanding of the topic studied

This criterion requires students to show detailed knowledge and understanding of the topic being researched, and its academic context. This means that they need to demonstrate relevant links between the topic and relevant business theories and techniques. These interrelationships need to be explicitly explained to reveal a clear knowledge and understanding. To demonstrate an appropriate level of knowledge and understanding, it is likely that students will need to use a range of sources.

Criterion E: reasoned argument

To score highly on this criterion, students need to link the research question with the conclusion in a clear, structured and logical way. A valid and persuasive argument needs to be developed in terms of business and management in the context of the business theory used. This means that there should be clear links that can easily

be followed between the research question and the conclusion. These links should be developed throughout the essay in a coherent, flowing and structured way that is valid and persuasively presented.

To ensure reasoned argument, the essay should also demonstrate clear links between the data and evidence presented, and the arguments developed from the data. Straightforward descriptive or narrative accounts that lack these links are unlikely to advance a successful argument and should be avoided.

Criterion F: application of analytical and evaluative skills appropriate to the subject

To score highly on this criterion, students need to demonstrate a sophisticated application of analytical and evaluative skills. This requires students to use the data and business theory they have considered and to assess arguments relating to the various aspects of the topic under consideration. This assessment should include a consideration of the relative value and importance of particular arguments in answering the research question. The research question should help focus this analysis and ensure that students are applying evaluative skills to make reasoned and supported judgments.

Criterion G: use of language appropriate to the subject

This criterion requires clear and precise use of business language and terminology. This must be used consistently throughout the essay and applied with consideration of the context of the arguments being used.

Criterion H: conclusion

“Consistent” is the key word here: the conclusion should develop out of the argument and not introduce new or extraneous matter. It should not repeat material from the introduction; rather, it should present a new synthesis in light of the discussion.

Criterion I: formal presentation

This criterion relates to the extent to which the essay conforms to academic standards about the way in which research papers should be presented. The presentation of essays that omit a bibliography or that do not give references for quotations is deemed unacceptable (level 0). Essays that omit one of the required elements—title page, table of contents, page numbers—are deemed no better than satisfactory (maximum level 2), while essays that omit two of them are deemed poor at best (maximum level 1).

The sources of all data used should be fully acknowledged and exact website addresses and dates of access given.

Criterion J: abstract

The abstract is judged on the clarity with which it presents an overview of the research and the essay, not on the quality of the research question itself, nor on the quality of the argument or the conclusions.

Criterion K: holistic judgment

Qualities that are rewarded under this criterion include the following.

- Intellectual initiative: Ways of demonstrating this in business and management essays include the choice of topic and research question, the nature and breadth of the theory chosen to help answer the research question, and the breadth of research sources and imagination used in sourcing relevant material/data.
- Insight and depth of understanding: These are most likely to be demonstrated through the analytical depth used to answer the research question, and the appropriateness of the business theories and tools used.