



Lean Competency System Level 3

A GUIDE TO WRITING THE ASSIGNMENT

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¹ Based on a paper by Vivien Perutz

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INTRODUCTION

PLEASE NOTE THE FOLLOWING IS GENERAL GUIDANCE

The guide is partly based on material gathered and adapted from a range of publications listed in the further reading section at the end.

The guidelines should be taken as just that. There is no rule, for example, that says you must plan an assignment in a specific way before writing it. Some people find that they work best by getting the ideas flowing first and imposing some sort of structure later; it is only once they start writing that they start to have an idea of what their direction will be. Even so, they must be clear at the outset as to what the assignment title requires of them to make sure that they stay within its constraints.

If, however, you are fairly new to assignment writing and not very confident about it, you might find it helpful to follow the suggested stages outlined below.

ASSIGNMENT STRUCTURE AND ORGANISATION

A GOOD ASSIGNMENT STRUCTURE

- Is made easier by prior planning.
- Makes it clear how you are going to address the question, where you are going and why.
- Sets out your main ideas clearly.
- Makes it clear how the main ideas relate to each other.
- Takes the reader through your answer in a logical, progressive way.
- Helps the reader to remember what you have said.
- Organises groups of related information in paragraphs.
- Uses connecting words and phrases to relate each point/idea to earlier and later points.

A MODEL ASSIGNMENT STRUCTURE

INTRODUCTION

- Arouse the reader's interest
- Set the scene
- Explain how you interpret the question set
- Define or explain key terms if necessary
- Give a brief outline of which issues you will explore, and in which order

ARGUMENT/MAIN BODY

Contains the points outlined in your introduction, divided into paragraphs:

PARAGRAPH 1

- Covers the first thing you said you would address.

- The first sentence (the topic sentence) introduces the main idea of the paragraph.
- Other sentences develop the topic.
- Include relevant examples, details, evidence, quotations, and references.

PARAGRAPH 2 AND SUBSEQUENT PARAGRAPHS

- The first sentence links the paragraph to the previous paragraph then introduces the main idea of the paragraph.

THE CONCLUSION

- Draw everything together
- Summarise the main themes
- State your general conclusions
- Make it clear why those conclusions are important or significant
- Do not introduce new material
- In the last sentence, sum up your argument/viewpoint very briefly, linking it to the title
- Set the issues in a broader perspective/wider context
- Discuss what you have failed to do – answers not clear, space limited
- Suggest further questions of your own

ASSIGNMENT WRITING – THE MAIN STAGES

1. Analyse the question
2. Make a rough outline plan
3. Use plan to guide research & reading
4. Undertake research & reading
5. Review, revise and refine the plan
6. Write first draft
7. Edit draft for structure and content
8. Edit draft for style
9. Check referencing
10. Proof read for spelling/punctuation
11. Produce final copy

STAGE 1 - ANALYSING THE ASSIGNMENT QUESTION

- Read the question several times.
- Underline the words that tell you what approach to take (e.g. discuss, assess, compare – see key words below).
- Highlight key words relating to the subject matter.

- Circle any other significant words that identify the scope of what you have to write about (e.g. simply, fundamentally, only, merely, currently, respectively).
- Note any terms that you need to define.
- Write the question out in your own words.
- In your introduction say how you interpret the question (e.g. by rephrasing in your own words)
- In your conclusion, refer back to the question; show the reader that you are still answering the set question.
- Write the question out in full on plans, notes and drafts to make sure you do not lose sight of it.

KEY WORDS IN ASSIGNMENT TITLES

NB. You might find that the title you have been given does not contain any of these key words. You will have to look carefully at the way the question is phrased, along with any accompanying guidance as to what is expected to establish what sort of approach is required.

ACCOUNT FOR

Give reasons for; explain why something happens.

ANALYSE

Break up into parts; investigate.

COMMENT ON

Identify and write about the main issues; give your reactions based on what you have read/heard in lectures. Avoid just personal opinion.

COMPARE

Look for the similarities/differences between two things. Show the relevance or consequences of these similarities. Perhaps conclude which is preferable.

CONTRAST

Bring out the differences between two items or arguments. Show whether the differences are significant. Perhaps give reasons why one is preferable.

CRITICALLY EVALUATE

Weigh arguments for and against something, assessing the strength of the evidence on both sides. Use criteria to guide your assessment of which opinions, theories, models or items are preferable.

DEFINE

Give the exact meaning of. Where relevant, show you understand how the definition may be problematic.

DESCRIBE

Give the main characteristics or features of something, or outline the main events.

DISCUSS

Investigate or examine by argument; sift and debate; give reasons for and against; examine the implications.

DISTINGUISH BETWEEN

Bring out the differences between.

EVALUATE

Assess and give your judgement about the merit, importance or usefulness of something. Back your judgement with evidence.

EXAMINE

Look closely into something.

EXPLAIN

Make clear why something happens, or is the way it is; interpret and account for; give reasons for.

EXPLORE

Examine thoroughly; consider from a variety of viewpoints.

ILLUSTRATE

Make something clear and explicit, giving examples of evidence.

INTERPRET

Show the meaning and relevance of data or other material presented.

JUSTIFY

Give evidence which supports an argument or idea; show why a decision or conclusions were made; answer the main objections which might be made.

NARRATE

Outline what happened.

OUTLINE

Give the main points/features/general principles; show the main structure and interrelations; omit details and examples.

RELATE

(a) Narrate

(b) Show similarities and connections between

STATE

Give the main features briefly and clearly.

SUMMARISE

Draw out the main points only; omit details and examples.

TO WHAT EXTENT

Consider how far something is true, or contributes to a final outcome.

Consider also ways in which it is not true.

TRACE

Follow the development or history of an event or process.

STAGE 2 – PLANNING

MAKE AN OUTLINE PLAN

- Keep the question in sight.
- Try using a “spider” or “pattern plan” to brainstorm relevant points – both what you know and what you need to find out. This type of plan reflects the way your brain works and helps to give you an overview of the assignment. (See mind mapping)

Give star ratings to the points you have noted:

*** for key points

** for important points

* for background points

Use different colours, letters or lines to show links.

Number the key points in the order you think you will introduce them.

Try out “Mindjet” Genius”, a mind mapping programme available on a 30 day free trial from www.mindjet.com

Try ways of planning where you can physically arrange the points:

- Different points on separate index cards – colour code “Post-its” on a sheet of wallpaper.

STAGE 3 – USE YOUR PLAN TO GUIDE YOUR RESEARCH

- Armed with your outline plan, use skimming and scanning strategies to identify material relevant to your key points.
- Use an active, critical, questioning approach to read the material you have identified.

STAGE 4 – UNDERTAKE RESEARCH AND READING

- As a key aim of the LCS level 3 assignment is to evaluate your in depth knowledge of lean thinking, the reading/research stage will be critical in enabling you to answer the question effectively.
- The recommended reading list will highlight several key books, reports and articles and these should be the starting point. You can check the sources used in the items you read and considering exploring some of these if you wish to go into particular detail in some areas. You may find that reading summaries or reviews of books provides a useful indicator of their usefulness.
- There is now, not surprisingly, a vast array of information available on the web, so it will be worth spending time experimenting with different words and phrases in search engines (including Google Scholar). In particular, there is a growing list of videos on YouTube covering the subject – just search on some key authors or terms.
- While your reading will be an early activity, it may continue to a lesser extent through the assignment’s life, as you continue to explore specific avenues or generally come across new or interesting information.
- It is important you make well organised and structured notes as you read and also note the source of information you use, so you can reference appropriately.

STAGE 5 - REFINE YOUR PLAN

- If your research has drawn out key points you would have missed out, include them. Delete anything that now seems irrelevant or unimportant.
- Work out the order for introducing key points.
- Convert your outline plan into a linear plan – list the main topics/arguments as headings in order.
- Code (colour, letters, numbers) the headings.
- For each main topic/argument note the main information you will include and the examples/other supporting details.
- Divide up your word allowance between the headings – allow one tenth each for the introduction and conclusion.

- Work out how many words per page you write in your handwriting. Select the total number of pages you will need. Draw out pages showing what topics you'll include on each page.
- Sort your research notes – use the code colour, number or letter to relate them to your plan.
- Start drafting!

STAGE 6 - DRAFTING

- If you have a mental block with the introduction, start with the “middle”, with a topic/idea you feel most comfortable with.
- Take each main topic/idea and write a paragraph about it.
- Do not worry about style/spelling at this stage – let the ideas flow.
- For each paragraph include a “topic sentence” that makes it clear what that paragraph is about. The rest of the paragraph will include information and evidence related to that “topic”.
- Leave space for editing.
- Write the conclusion – it should sum up the content of the “middle” and relate back to the title.
- Write the introduction – it is easier to say what your assignment sets out to do once you have done it.
- If you have word-processed your draft, print off a hard copy for editing purposes.
- Put the draft aside for a day or so – come back to it with a fresh pair of eyes.

STAGE 7 – EDITING YOUR DRAFT

First re-read your draft, checking for structure and content:

- Does the main body do what the introduction says it will do?
- Is it clear what each paragraph is about? (Highlight the topic sentence; sum up the topic in the margin and colour code it.)
- Is every paragraph relevant to the question?
- Is everything in the paragraph relevant to the main “topic”?
- Is there enough in each paragraph to support the “topic”?
- Is anything repeated/superfluous?
- Is everything in the right place?
- Are the sentences in each paragraph in the right order?
- Does every paragraph relate clearly to the others? (See useful linking words and phrases).

STAGE 8 - CHECK AGAIN FOR STYLE AND PRESENTATION:

- Are the ideas clearly expressed, in an academic style?
- Have you cited references correctly and listed them at the end?
- Does the spelling/punctuation help the reader?

USEFUL LINKING WORDS AND PHRASES

TO INDICATE A CONTRAST:

however	on the other hand	in contrast
alternatively	on the contrary	conversely
in comparison	rather	in fact
another possibility	better/worse still	but
despite this	notwithstanding	in spite of
nevertheless	for all that	yet
all the same	instead	although

TO PROVIDE AN ILLUSTRATION:

for example	as follows	that is
that is to say	for instance	say
in other words	namely	such as
chiefly	mainly	most importantly
typical of this/such	notably	one such
including	especially	not least
a typical/particular	in particular	key example

TO EXTEND A POINT:

similarly	equally	in addition
in the same way	indeed	likewise
too	besides	also
above all	as well	furthermore

TO SHOW CAUSE AND EFFECT/CONCLUSION:

so	therefore	accordingly
thus	hence	then
it follows that	for this reason	this implies
in this/that case	consequently	because of this/that
this suggests that	in conclusion	in short
to conclude	In brief	in all
it might be concluded from this	accepting/assuming this	resulting from/in consequence of this
as a result/consequence	owing to/due to the fact that	accepting/assuming this

TO SHOW THE NEXT STEP:

first(ly)	second(ly)	to begin/start with
lastly	last but not least	ultimately
first and foremost	finally	another

then	after	next
afterwards	third(ly)	first and most importantly
in the first place	in the second place	

ACADEMIC WRITING STYLE

The LCS Level 3 assignment should be written in more of an academic style, as opposed to a personal story or opinionated 'blog' style article.

Stella Cottrell (2003) refers to three main styles used in academic writing: **descriptive**, **argumentative** and **evaluative**. Many writing tasks will involve some combination of the three and the use of critical, analytical skills.

DESCRIPTIVE WRITING

DIFFERENT PURPOSES:

- To describe what happened: e.g. main events. methods, findings.
- To describe the main features or functions: e.g. of a policy, practice, method.
- To summarise the main points: e.g. of a theory or article.

GUIDELINES:

- Identify relevant themes to include
- Be clear, precise and accurate
- Use a logical order
- Keep to the point
- Indicate the significance of what you describe

NB. Descriptive style varies between subjects – get used to what your subject expects.

ARGUMENTATIVE WRITING

PURPOSE:

To argue a case/point of view, to influence the reader's thoughts/actions

GUIDELINES:

- State your position clearly and concisely.
- Use a clear line of reasoning to support your position.
- Give reliable, relevant, valid and convincing evidence/examples to support your reasons.
- Consider and respond to the possible arguments against.
- Try not to sit on the fence – show there are different arguments but make clear which you find most convincing.

EVALUATIVE WRITING INVOLVES:

- Comparing - finding points of similarity.
- Contrasting – finding points of difference.

- Evaluating significance of similarities and differences. Do they matter? Do they have important implications for which model should be used? How did you decide what was significant?
- Making a judgement. Give reasons for your opinion, based on the evidence.
- Showing your criteria. Show what criteria you used to arrive at your opinion – e.g. data, research evidence
- Get the balance right – compare like with like and give equal information and evidence to both.

USING PERSONAL EXPERIENCE

- Use personal experience to support and illustrate arguments and viewpoints.
- The use of personal experience will be most relevant in the second part of the LCS assignment.
- Points to consider when including personal experience:
 - How typical is your experience?
 - (Any research done? Any relevant reports or articles?)
 - How does your experience compare with other people's?
 - How relevant is it?
 - How does it link to theories you have studied?
 - How does it support or contradict theories and views you have studied?
 - Can any lessons be drawn from it?
 - Can any valid generalisations be drawn from it?

Personal writing uses different language: for example; "I found that" rather than "It was found that" (More emotional, subjective, intuitive and anecdotal)

A CRITICAL, ANALYTICAL APPROACH

Being analytical is about breaking things (situations, practices, problems, statements, ideas, theories, arguments) down into their component parts.

Being critical is about not accepting things at face value, but evaluating them i.e. making reasoned judgements about how valid, effective, important, relevant, useful and worthwhile they are.

The argumentative and evaluative writing styles referred to above reflect this analytical, critical approach.

To demonstrate the analytical/critical thinking expected means asking **lots of questions** of everything you read, observe, hear, experience and do to probe beneath the surface, looking for reasons, explanations and motives.

See Cottrell (2003) for guidance and activities to help develop critical thinking skills.

See also [Anglia Ruskin's on-line guides](#) "Critical analytical thinking" and "Evaluating an argument"

REFERRING TO BOOKS AND OTHER INFORMATION SOURCES

In developing your ideas and arguments in an assignment you need to refer to a range of books, reports, articles, company information, journals, web sites and other material to support your views/statements and give weight to your arguments.

You will need to make notes from your reading; consider the following:

- Keep your reading purpose in mind and work out in advance what information you need.
- Only note the information you need for the purpose. Don't repeat information.
- Sum up main ideas/ key points - in your own words.
- Note exactly where the information comes from.
- Note real names and quotations exactly as they were written.
- Keep notes brief – avoid full sentences; use key words as memory triggers; use abbreviations.
- Try pattern notes – they give an overview and show links and can be more memorable visually.
- Leave spaces and a wide margin and use only one side of the paper so you can add new information.
- Carry Post-it labels with you to note ideas that occur to you – stick them on a blank sheet in a plastic wallet.

Some important points to remember when using material from books etc:

- Do not** pass off other people's ideas as your own (plagiarism).
- Do** acknowledge your sources of ideas and information (see the business school's library's [on-line guide on Harvard Referencing](#))
- Do not** just piece together other people's ideas to construct your own argument.
- Do use** other people's ideas to scaffold your own argument.
- Do not** "decorate" your assignment with lots of direct quotes to prove you have read lots of books.
- Do** use direct quotes sparingly, introduce them carefully and make it clear how they relate to your ideas.
- Do not** present other people's ideas as fact.
- Do** show you've critically questioned other people's work to inform your own learning.
- Do not** just cite authors who agree with you.
- Do** bring in opposing ideas and show why you think they are mistaken.
- Do not** read passively, just collecting ideas and reading the lines.
- Do** engage with your reading – link it to other things you have learned/read, ask questions, use it to develop your opinions and attitudes – read between the lines.

STAGE 9 - CITING REFERENCES IN TEXT – SOME USEFUL EXPRESSIONS

The following expressions will be useful for introducing other people's ideas in your assignments.

INTRODUCING SOMEONE'S IDEAS:

Bloggs (2002)

- suggests/argues/states/believes/concludes/proposes that ---
- expresses/holds the view that ---
- draws attention to ---
- describes X as ---
- describes how ---
- refers to ---

- takes the stance that ---
- emphasises/stresses the need to/the importance of---

or According to Bloggs (2002) ---

- As stated/suggested/argued/proposed by Bloggs (2002) ---
- There is a view/theory/argument that --- (Bloggs, 2002).
- It has been suggested/stated/argued/proposed that --- (Bloggs, 2002)
- One view/theory/argument/suggestion/proposal is that --- (Bloggs, 2002)
- One view, expressed by Bloggs (2002) is that ---

WRITING STYLE CONVENTIONS IN ASSIGNMENTS

- Use formal, standard English - avoid colloquial terms and dialect. "You write as you speak" is a common complaint.
- Avoid abbreviations and contractions (use "for example", not "e.g."; use "did not" instead of "didn't").
- Numbers below ten are written out in full, except in statistical and scientific work.
- Be impersonal (unless your course requires otherwise) – avoid using "I", "we" and "you". Instead use "It can be seen that", "There are a number of", "It has been found that" etc.
- Be cautious. Avoid sweeping statements - use words and phrases such as "appears to", "seems to", "may", "probably", "apparently", "generally", "The evidence suggests that", "In some cases this".
- Use rational argument rather than emotive language.
- Be objective – avoid personal, subjective words such as "wonderful", "worthwhile".
- Use continuous prose – lists and headings are for reports and projects.
- Do not address the reader directly by asking them a direct question or telling them what to think.

EXPRESSING YOUR IDEAS CLEARLY

- Be clear in your own mind what you want to say.
- Express ideas clearly – the reader cannot ask questions to clarify.
- Be concise - make every word and sentence count; avoid repetition, fillers and unnecessary words. (e.g. an annual income of £20,000 per annum)
- Be precise – avoid generalisations and vagueness. (Specify who, what, where, when and how)
- Use short, straightforward sentences. (See "Reader loses way in long-winded sentence").
- Use plain English and familiar words. (e.g. Death – not "negative patient care outcome").
- Avoid clichés (e.g. at the end of the day, the bottom line is).
- Use the correct words – beware of commonly misused words. (e.g. affect/effect, principle/principal, adverse/averse).
- Avoid ambiguous words and sentences. (e.g. Water is available below the ground surface and most of the country's crops are grown there).

- Check your punctuation – it should help, not confuse, the reader. (See on-line guide on punctuation).
- Check your spelling. Make a point of learning to spell words used commonly in your subject and in academic writing generally.

READER LOSES WAY IN LONG-WINDED SENTENCE!

A common failing is sentence length. The following is an example:

“The respondents, however, in spite of their doubts about the single currency, foresaw many benefits, including the elimination of the risks involved with currency exchange, the equalization of currencies, the reduced administrative costs (e.g. in billing) and the psychological benefits attached because of a strengthening of the bonds between countries and it being evidence of a united European economic power.”

By break the sentence up into its different parts you can read and make scene:

The correspondents had doubts about the single currency but they foresaw many benefits. The risks taken in exchanging currencies would be removed, currencies would be equalized and administrative costs would be reduced. Moreover, psychologically, bonds between countries would be strengthened by the existence of a united European economic power.

REFERENCING

When writing an assignment, report or other assignment you will often need to support your arguments by referring to other published work such as books, journal or newspaper articles, government reports, dissertations and theses, and material from the Internet.

You will need to give accurate references:

- To give credit to other authors' concepts and ideas
- To provide the reader (often the marker/examiner of the assignment) with evidence of the breadth and depth of your reading
- To enable the readers of your work to locate the references easily
- To avoid being accused of plagiarism, an academic offence which can lead to loss of marks or module failure.

For detailed information on how to reference please visit the University LIBRARY'S WEBSITE:
<http://www.cardiff.ac.uk/insrv/educationandtraining/guides/citingreferences/index.html>

ASSIGNMENT READING

A selection of key books and articles is shown below. You are not expected to read all these (though generally the more you read the better informed you will be...). It is worth reading reviews or summaries of books first before you start reading so your time invested in reading is worthwhile. You should also use search engines (eg Google, Google Scholar) to explore themes and authors, as clearly there is a massive amount of material available online. Those entries in **red** are good starting points for your reading.

Those papers marked * are available as pdf files.

Topic	Recommended Sources, Resources
Development & Evolution of Lean Thinking	<ul style="list-style-type: none"> • The Machine That Changed the World (1990), Womack, Jones & Roos • Genealogy of Lean Production (2006), Holweg – paper* • The Lean Toolbox, Bicheno & Holweg, 2008 (4th Edition): Chapters 1 to 3, and Chapter 18. • Learning to Evolve (Hines, Rich, Holweg, 2004) – paper*
Understanding Toyota/Lean principles, philosophy	<ul style="list-style-type: none"> • Lean Thinking (1996) Womack & Jones Chapters 1 to 5 (up to page 98) • The Toyota Way (2004), Jeff Liker • Decoding the DNA of the Toyota Production System (1999) Spear & Bowen – paper * • The Lean Toolbox, Bicheno & Holweg, 2008 (4th Edition) Chapters 1 & 2
Sustainability	<ul style="list-style-type: none"> • Staying Lean (2nd Edition) Hines, Found, Griffiths, Harrison <i>A pdf version of the first version is available.</i>
Lean Strategy, Leadership & Behaviour	<ul style="list-style-type: none"> • Toyota Kata (2009), Jeff Liker (esp parts 1 and 2) http://www-personal.umich.edu/~mrother/Homepage.html • High Velocity Edge (2010), Steven Spear http://www.stevenjspear.com/
Lean Management	<ul style="list-style-type: none"> • Real Lean - Volumes 1 to 6 (from 2007), Bob Emiliani http://www.bobemiliani.com/
Lean Culture	<ul style="list-style-type: none"> • Creating a Lean Culture (2010), David Mann, 2nd ed, esp Chapters 1 and 2
Lean in Service	<ul style="list-style-type: none"> • Freedom from Command & Control (2003) Seddon, Chapters 1-5 (up to page 104) • The Service Systems Toolbox, Bicheno (2012)

OTHER LEAN BOOKS

John Bicheno produces a list of his top '100 Lean Books' and for each of which he gives a personal 'star' rating (the list is regularly updated). Many of these are not explicitly 'lean', though are generally closely aligned with the broad lean philosophy. Clearly, you will not need to read these for the purposes of the assignment, though it is worth browsing through the list and looking at summaries of books that are of interest to you. The document will be made available.

SELECTED WEBSITES

<http://www.lean.org/>

<http://www.leanceo.com/>

<http://www.bobemiliani.com/>

<http://www.leanmj.com/>

<http://www-personal.umich.edu/~mrother/Homepage.html>

<http://www.stevenjspear.com/>

SOURCES OF FURTHER GUIDANCE

Cottrell, S. 2003 *Critical thinking skills: developing effective analysis and argument*. Basingstoke: Palgrave Macmillan

Cottrell, S. 2003 *The study skills handbook*, 2nd ed., Basingstoke: Palgrave Macmillan

Crème, P. and Lea, M.R., *Writing at University*, 2nd ed., Maidenhead: Open University Press

Fairbairn, G.J. and Winch, C., *Reading, Writing and Reasoning*, Buckingham, Open University Press

Greetham, B. *How to write better assignments*, Basingstoke: Palgrave

Rose, J. *The mature student's guide to writing*, Basingstoke: Palgrave