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1 In the 2011/2012 study-guide called ‘Essay’, in this text it is sometimes shortened to review.
Introduction

The literature review is a required course in the Geo-ecological Dynamics track and an optional course in the Environmental Management track (curriculum of the Earth Sciences MSc at UvA). It is an individual activity which you can plan at any moment in your studies, and during which you are supervised individually by a supervisor of your choice. This syllabus sets out the requirements of the literature review and offers advice to help you write a great review. Read this syllabus carefully and well before you plan to start with your literature review. If things are unclear, don’t hesitate to ask the coordinator (vanloon@uva.nl).

Roles and responsibilities

In the literature review, there are no less than three staff members involved in your supervision: a (real) supervisor, a reader and a course coordinator. However, you will usually only meet with and get feedback from your supervisor. The reader is another staff member who will grade your review independently, to enhance the comparability of grades and assessment criteria across supervisors. The coordinator establishes and communicates the rules for the course, collects all final products (research plan, final review and presentation) and grades (for the final review and the presentation), and may act as a mediator in case of conflict between student and supervisor. A more detailed list of all these responsibilities is given in Appendix 1. However, in spite of all this supervision, you as a student carry most of the responsibilities: select a subject and approach a supervisor (or vice versa), start studying the initial background material, write a research plan and work according to that plan. The student tasks and responsibilities are detailed in the list below.

Tasks and responsibilities of student in the Literature Review

1. Choose a topic and find a staff member willing to supervise you.
2. Make research plan, with help from supervisor if needed.
3. Get approval for the research plan from supervisor.
4. Upload final research plan on Blackboard.
5. Work on review and inform/consult supervisor, as agreed in plan (aaip).
6. Hand-in draft version of review (either in parts or complete, aaip).
7. Receive and process feedback on questions and draft material.
6. **Hand-in final version of review to supervisor and reader.**
7. Upload final version of review on Blackboard.
8. Plan or confirm presentation of review in the Research Workshop.
9. **Present review in Research Workshop*.**
10. Upload presentation on Blackboard*.

*If convenient, you could also present your review before handing in the final version.

As you notice in the list of your (student) tasks and responsibilities, two items are highlighted in bold. These are the two items for which you receive a grade. The grades are combined to a final grade by weighting the written review by 0.85, and the presentation by 0.15. Furthermore, the tasks to upload the research plan, the final version of the review, and the presentation to Blackboard are highlighted by a shaded background. The reason for this highlight is that these are mandatory tasks: all three products need to be uploaded before a grade is provided to the Education Service Desk! The list below explains in a bit more detail what exactly you will have to upload on Blackboard (see Appendix 2 for a more elaborate explanation).
Description of the three products from the Literature Review which are to be uploaded

1. **Research plan** – an English text in MSword or pdf format
2. **Literature Review** – a zip-archive, containing:
   a) a fully formatted English text in MSWord or pdf format
   b) a literature database in Refworks, Endnote or Bibtex format, containing all citations used in the review.
   c) pdf-versions of all the literature used in the review (those sources which are not available digitally can be omitted)
3. **Presentation** – a presentation in MSpowerpoint or pdf format.

Choosing a subject and supervisor

The first step in conducting a review is to find a subject. You can approach this in one of the following ways:

1. select a topic from the list of available review subjects available at the literature review blackboard page (here);
2. think out a subject yourself (see also the section ‘Selecting and studying literature’) and either ask someone from the available staff for this course (you find the list with names on blackboard) to supervise you, or find someone who is not on this list to supervise you and ask permission from the coordinator (vanloon@uva.nl).

After you have found a topic and supervisor you are almost ready to get going, you just have to make a plan, put it concisely on paper and get approval from your supervisor. After choosing a subject and supervisor make an appointment with your supervisor to discuss when you hand in your plan, the moment of your next meeting (approval/feedback on plan), and the way your supervision will be organized (including the mode and frequency of contact with your supervisor).

---

2 spend a few minutes up to a day on this
Making a good plan

The full time-line of a review is not as straightforward as it may seem at first. A typical workflow may look as follows:

1. You find a subject and supervisor, who has a topic and provides literature to get started.
2. You read the literature provided to you, and search some more material.
3. You make a plan, get feedback from supervisor, adjust your plan, and get approval from your supervisor and subsequently upload the plan on Blackboard.
4. You immediately start working on the review, but are delayed by +/- a week. Hence you notify supervisor, and move the next deadline ahead by one week.
5. You hand in the first parts of your work (as agreed in plan, for example a summary and outline of your review), ask for feedback from supervisor (the more specific your questions, the better), and revise your material based on the feedback you get.
6. You continue work on review (and make sure you won’t get delayed again), meeting two more times with your supervisor.
7. You agree with your supervisor to present the review after finishing the draft, and plan your presentation with the coordinator of the Research Workshop.
8. You hand in the draft of your review; get feedback from supervisor.
9. You present your review at research workshop where after you receive a grade and feedback from your supervisor. Furthermore, you arrange that you get feedback on your presentations from two fellow students.
10. You upload your presentation on Blackboard.
11. You use the comments on the draft and feedback at the Research Workshop to finalize your review.
12. You hand-in the final review to your supervisor and reader (after checking whether they want it digitally, in printed form or both).
13. You upload a zip-archive on blackboard containing a pdf-version of the review, a literature database with the citations and pdf-files of the literature you used in your review.
14. You receive a grade and feedback on the final version of your review from your supervisor.

Your review-plan is important to get through these steps efficiently. It requires that you are explicit about the question(s) you wish to answer with the review, how (frequent) you will have interaction with your supervisor, and when your review will be finished. A good plan will ensure that you and your supervisor have the same expectation from the project and use (+ stick to) the same time-schedule. It is also important to keep in mind that 12 EC (the size of this course) equals eight weeks of full-time work. So there is no reason why you shouldn’t or couldn’t finish your literature review in that time period. In Appendix 3, an example time-plan is given over a twelve-week period (assuming a 32-hour working week). Write your plan in English.

Key articles

To make your plan you first need to study three key articles. In principle, your supervisor has to supply you with these after an initial discussion on your review subject, but you could also suggest the key articles yourself. And after reading an initial set of key articles you may decide to read a bit further and find even more appropriate papers. The key articles should show whether the aim you have in mind is feasible and help you formulate your research questions, they also provide you with important information about the range of subjects that may be included in your study. Finally they may also provide a point of entry into the literature.

3 spend two days up to two weeks (maximum) on this
Aim and Research Questions
The next step after reading the key articles is to define and formulate (write down) the aim and research questions of your literature study as clearly as possible. First formulate a general aim that describes what you want to achieve and then break this down into very specific research questions that you can factually answer. Where possible, these should be in the form of closed rather than open research questions. Examples of typical aims of a review:

- Inventorize the measurement techniques available to observe process ...
- Inventorize the different methods to study ...
- Analyze the differences between ... and ...
- Establish the ‘state of the art’ with respect to ...
- Find examples of models that describe ...
- Describe studies where the process ... is explained via ...
- Critically investigate whether studies in ... are using method ... correctly

Finishing the review plan
You should now be sufficiently prepared to make a good plan for your review. Write down your plan (not exceeding 2 pages), which contains:

- (working) title of the review
- aim of your literature research
- questions you will try to answer
- key articles you are using (see section ‘Selecting and studying literature’)
- time schedule for the whole period, including at least the frequency or dates when you report to and meet with your supervisor and dates at which you (i) hand in the summary, (ii) hand in the draft version of your review, (iii) present your review at the Research Workshop, and (iv) hand in the final review.

The plan should be signed by you and your supervisor and the final version should be uploaded to Blackboard. You are now ready for the real work.
Selecting and studying literature

The review should eventually contain between seven and ten thousand words (20 to 30 pages) in well-readable and grammatically correct English. It should be based on (i) three to five “key articles” and (ii) an additional 15 to 30 articles.

While making your plan, you already studied the key articles and the next step involves identifying, locating and reading other useful articles. Some of these articles will provide the background information that you will need to in order to be able to answer your research questions.

You can scan or read an article, with your research questions in mind and in this way identify if it is potentially useful. You can also check this first by reading the abstract or summary. Make sure that you read at least 15 to 30 relevant articles (according to the length and difficulty of the articles that are identified). Only when you are sure that the article is relevant, should you study it in detail.

Extracting information from the selected literature

In practice this can be very personal and each student should discover for themselves their most effective way of working. In all cases work systematically and make notes that you keep either in a loose-leaf file or using a computer.

Sometimes it is useful to read all of the articles twice. The first time, read all articles quickly, one after another, to gain an overall impression. You can then sort the articles out into different categories before reading them a second time making notes.

Try to understand what you are reading and to summarize this in your own words. Don’t copy text from the article. In your notes you should refer to the relevant author, article and page number in order to be able to trace the source. Stay organized!

You are required to use the a reference manager like Refworks (which is nowadays supported by UvA) or EndNote. This has proven to be extremely (time) effective and the ability to use a library manager is considered a required skill. You can find a Refworks course (free for UvA students) and tutorials on the UvA library webpages.

It can be very helpful to organize your information in schemes. In this way you can retain an overview of a large amount of information. You can organize and rank your information in all kinds of ways. You can also make flow diagrams and causal loops to show the interrelationships between different items.

While reading, try to gradually develop the plan for your literature study. In this way you will select and read articles more effectively. A clear formulation of your research question will be a big help in this.
Terminology

It is often very useful to create a glossary when studying the literature relevant for your review. A glossary is a list of terms with their meaning. You will find that in the scientific literature there are often conflicting definitions (two different sources attach a different meaning to the same word) and synonyms (different terms are referring to the same concept and have practically the same meaning). A good glossary outlines the conflicting definitions as well as synonyms. Make sure to provide the appropriate sources for the definitions in your glossary and, in case of conflicting definitions, indicate which definition you are using in your literature review. Be consistent in the use of terminology throughout your review, and use your glossary to help you doing so.

Similar to a glossary for terminology, a list of symbols for variables or parameters with associated explanation and units, will help to avoid errors or ambiguity and thereby considerably enhance your review.

Writing: outline, summary, draft, final

As soon as you have acquired an overview of the overall structure of what you want to write, you make an outline of your review. Name the chapters and sections that you plan to create and describe in a few lines what these should contain. Next, turn this outline into a summary. You hand in this summary and the outline to your supervisor, so that she/he can check that the structure you have in mind is attainable and in line with the review aim. Based on the feedback from your supervisor you can enhance the review structure or continue with the writing phase.

When writing it is of considerable importance to continuously question and improve the organization of your work. It can be useful to organize “key words” in schemes. You can begin, for example, by grouping key words so that they correspond with the main points that you want to consider. You can then group these key words into appropriate clusters. These can then be considered in different orders.

Begin writing a draft version of the text as soon as you can. Don’t worry too much about being exact. Later there will be time for rewriting, improving or scraping text.

This principle also applies to the separate chapters and paragraphs. Begin by making an outline or blueprint of what you want to do. Then you can draft the first version of the text, which you critically revise at a later moment.

Examples

It can be very instructive or inspiring to see how other people have written reviews. There are many high quality reviews in the journals ‘Earth Science Reviews’, ‘Annual Review of Earth and Planetary Science’, ‘Progress in Physical Geography’ and ‘Trends in Ecology and Evolution’ that you can use for this purpose.
The text

Your literature study will possibly be a sort of visiting card when you apply for a position in the future. So it is important that it is (i) neat and (ii) interesting and (iii) enjoyable to read.

Break down your text using paragraphs and headings in a way that enables the reader to quickly assimilate the information.

On the title page mention:

- the title (in the center),
- your name, student number, and date submitted (bottom left)
- your supervisor (bottom right)

On the third page (the back-side of the title page should stay blank) mention:

- The contents, with the chapter titles with page numbers and optionally also titles of sections.

The literature study begins with fixed chapter headings. First there are the Abstract and the Introduction, then follow the Results of the literature study. You can think of titles for these chapters and break them down into paragraphs. Then follow the more or less fixed chapters Discussion and Conclusion. Finally, there is the list of References. This should contain a list of all of the papers that you have studied and cited in your review.

In writing the report, try to separate between the results, discussion and conclusion. The results should describe what you have found. The discussion gives your interpretation. The conclusion summarizes what you have found out. You should make sure that all of the questions that you have formulated in the introduction are followed through in the Results, Discussion and Conclusion.

When you have finished the complete text (introduction to conclusions), you should write an abstract of half a page or less which summarizes your review properly.

References

As you work with a reference manager, you shouldn’t have much trouble with formatting your references properly. You can choose a reference style that you (and your supervisor) like and simply apply that. The only restriction for your review is that you have to use a year-author style in your text (not numbers), and a list of references which is alphabetically ordered. This is the style most commonly used in biology and the earth sciences. Don’t use the style of numbered referencing that is adopted by journals like Science or Nature. Make sure your style for listing citations in the text and the reference list is consistent throughout the review. Make sure that all cited references are in the reference list and vice versa.

Below are examples of how your references to an article in a journal, a chapter in a book or a book can look:


To refer to something that was said or stated, references in the text are abbreviated as follows: Nieuwerken (1986) and Owen (1986) described …. Alternatively, you can also add the name in brackets in the sentence: …which was confirmed by several experiments e.g. (Nieuwerken, 1986; Owen, 1986).

Cited text should be indicated as such and put between quotation marks and in italics, together with the source, e.g.: ‘A feature much debated in the past is the plateau-like tops of many push moraines’ (from Bakker, 2004). Of course the full description of the source should also be listed in the list of references.

**Presenting your work**

Scientific research is about communication. To stir people’s interest in your work but also to explain details and to invoke useful criticism, verbal communication is very important. You practice this aspect of scientific communication in this part of your MSc curriculum by presenting your review during the Research Workshop with a 15 minute presentation, followed by a discussion of 10 minutes.

Start to prepare your presentation in time, try to finish your presentation (the structure as well as the presentation material you plan to use) a week before the presentation is due. You have then time to practice a few times. Practice your presentation several times for an empty room and/or in front of a friend (the quality of your presentation will greatly improve).

Find one or more fellow-students who want to critically listen to your presentation and provide you with constructive, written, feed-back. You can use this feed-back to further improve your presentation skills. Some example-questions for a presentation evaluation-form are given in Appendix 4.
Evaluation Criteria

The following criteria will be used to evaluate and grade your review

1. Are the aim and research questions clearly defined?
2. Are the contents of each chapter clearly described?
3. Is it clear exactly which articles were used and are these correctly referred to?
4. Is the material used relevant and up-to-date?
5. Are all of the cited references relevant?
6. Are the facts and interpretation clearly separated?
7. Are the conclusions logically derived from the analysis of the articles?
8. Are the conclusions relevant to the review aim?
9. Are the conclusions examined in relation to information presented in the articles?
10. Is the style of writing appropriate?
11. Does the summary adequately cover the entire review?
12. Does the review succeed as an exercise in communication?
13. Are scientific terms correctly defined and used consistently?
14. Is the review neatly produced with an attractive layout?
15. Was the review finished according to the time-plan?
16. Was feed-back on the draft version dealt with properly?
17. Was the review well presented (by adequately covering the entire review, being clear and interesting)?

Furthermore, your work will be checked for possible plagiarism with the Ephorus system. In case plagiarism is discovered in your work, the examination-board will be notified and decide whether you can continue with your studies. So make sure to place all text that you use literally between quotation marks and in italics and that you cite the original sources where appropriate. You are supposed to know (based on your Bachelor education) how to acknowledge your sources properly, to paraphrase correctly and how to avoid plagiarism. However, if you unsure you can check the instruction and examples available at this web-page from the university of Melbourne: http://www.courseworks.unimelb.edu.au/researchandwriting/referencingandavoidingplagiarism.php
More resources:

Our own UvA library does not only give you access to the scientific literature, it also provides many useful written manuals on different catalogues, tutorials on using referencing software, search tips (etc.) online at http://cf.uba.uva.nl/en/index.html; but you can also ask help from a librarian or join a short instruction-class (http://www.uba.uva.nl/hulp/cursussen.cfm).

To learn the details of referencing:

To formulate better, and enhance your style:

A comprehensive book dealing with the process of writing a thesis or review:
Appendix 1. Tasks and responsibilities of supervisor, reader and coordinator in the Literature Review

Supervisor
1. Help student to start writing the research plan, providing initial ideas and/or background information and background literature.
2. Provide feedback on draft research plan.
3. Find a staff member who is willing to act as reader.
4. If the research plan is in order: approve research plan.
5. Meet with student, providing advice and answers to questions, as agreed in plan (aaip).
6. In case of delay and/or standards which are lower than expected: notify student, also possible consequences for final grade.
7. Provide feedback on draft-report (either in parts or complete, aaip).
8. Grade final version of the review.
9. Get grade from reader. In case of discrepancy larger than 0.5 point: discuss with reader (followed by adjustment of judgment, averaging of grades, or consultation of coordinator).
10. Write a short written feedback on the final version of the review for the student.
11. Grade the presentation of the review in the Research Workshop, and provide written or oral feedback to the student directly after the presentation.
12. Send grades for the review (weight: 0.8), the presentation (weight: 0.2) and the feedback on the review to both the student and the coordinator.

Reader
1. Read final version of review, upon receiving it from the student.
2. Communicate grade to supervisor and discuss discrepancies if needed.

Coordinator
1. Establish rules and instructions for the course, maintain Blackboard site and syllabus, communicate course info to students and staff.
2. Check whether research plan is sufficiently informative and realistic; if not: notify student and supervisor.
3. Mediate in case of problems between student and supervisor.
4. Pass final grade on to the Education Service Centre.
5. Keep a record of all grades.
6. Maintain an archive of all research plans, final reviews, supervisor-feedback, and presentations.
Appendix 2. The three results from the Literature Review a student has to upload on Blackboard.

In order to get a grade for the Literature Review, a student has to upload the following three items on the Blackboard site for the course:

1) The Research plan.

Upload it right after the supervisor has approved the research plan. The plan should be a short document (in English) in MSword or pdf format (not exceeding 2 pages in length), with at least the following contents:
- a (working) title of the review
- aim of your literature research
- questions you will try to answer
- key articles you are using (see section ‘Selecting and studying literature’)
- frequency or dates at which you will meet with supervisor
- frequency or dates at which you will hand in material
- time schedule, including tentative dates at which you (i) hand in the summary, (ii) hand in the draft version of your review, (iii) present your review at the Research Workshop, and (iv) hand in the final review.

2) The final version of the Literature Review, with supporting material

The material to be included is:
- the final version of the literature review (in English) in MSword or pdf format
- a database of the citations used in the review in RIS format (the default format if you export citations from RefWorks or Endnote, the most common exchange format) or Bibtex format.
- In a separate folder: pdf-documents of all the sources that are being cited. Sources that were not available in a digital form can be omitted.
All of this should be combined into one zip-archive, and upload right after providing the supervisor and reader with the final version of the literature review.

3) The presentation

Upload the presentation in MSpowerpoint or pdf format right after presenting the review at the research workshop.
Appendix 3.  Example time schedule for a Literature review

See the excel-version of this plan, to see all the details, including comments.

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>find a subject and supervisor</td>
<td>wk1</td>
</tr>
<tr>
<td>read the key-articles</td>
<td>wk2</td>
</tr>
<tr>
<td>make a plan, get approval from your supervisor &amp; upload</td>
<td>wk3</td>
</tr>
<tr>
<td>work on review</td>
<td>wk4</td>
</tr>
<tr>
<td>hand-in summary &amp; outline; get approval from supervisor</td>
<td>wk5</td>
</tr>
<tr>
<td>continue work on review</td>
<td>wk6</td>
</tr>
<tr>
<td>hand in draft and prepare presentation</td>
<td>wk7</td>
</tr>
<tr>
<td>present your review at a research workshop &amp; upload</td>
<td>wk8</td>
</tr>
<tr>
<td>process feed-back on your draft version and presentation</td>
<td>wk9</td>
</tr>
<tr>
<td>provide supervisor &amp; reader with final version review &amp; upload</td>
<td>wk10</td>
</tr>
<tr>
<td>review is graded by supervisor</td>
<td>wk11</td>
</tr>
<tr>
<td>official registration of your by coordinator grade</td>
<td>wk12</td>
</tr>
<tr>
<td>meeting with supervisor</td>
<td></td>
</tr>
<tr>
<td>relax &amp; look back on a great achievement</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 4. Example feed-back form on a literature review-presentation.

The idea is that you (the author and presenter of your review) give this list to your fellow-students who are going to give feed-back. It is not a 'fit-for-all' list of evaluation criteria. So, you should adjust it and add other criteria by which you want to be evaluated. The comments will be for you only, to improve your presentation skills (not for grading or anything like that) - use this opportunity.

Name and email

General Understanding
Summarize the technical content of the presentation, in a few lines, to see whether you understood the message.
What were the major discoveries/conclusions? Were they supported by data/literature?

Structure / layout
Was the presentation well organized? Give examples of places where there is room for improvements.
Were the tables graphics visible and useful? Give examples.

Attitude / style
Did the presenter talk to you/the public?
How did the presenter deal with questions? Give an example to illustrate your feed-back.
Did the presenter speak clear and in proper English? Indicate where you think there is room for improvement.
Were there annoying habits in the presentation style (language/attitude) that distracted from the message?

Overall rating
How would you rate the content of the presentation? Excellent, Very Good, Good, Fair, Poor?
List suggestions for improvement.