Medical School DDP MED6950 (Literature review)

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http://www.sheffield.ac.uk/medicine/current/postgraduates/ddp/med6950
Literature Review

• An account or description of a research area/topic which is supported by previously published work

• A review of the literature that relates to YOUR research topic

• Not simply a summary of the literature, but an in-depth discussion and critical analysis of the topic

• Should identify questions and gaps in the field, thus justifying the need for your research
Purpose of writing this review

• Understand the field and gain a firm grasp of competing hypotheses
• Gain ‘ownership’ of your project
• Clarify why your research project is important
• Can form the core structure of the introduction in confirmation review and final thesis
• Scientific writing, literature searching, use of reference manager & contents page tools, figure construction
• Important skill for anyone with a scientific career
Literature Review Content

• Discuss content with supervisor at outset
• Should contain factual information that can be referenced and therefore verified
• Should cover entire scope of your study
• Conflicting arguments should be equally weighted and discussed – it is a review!
• You may express an “evaluated opinion” or speculate on controversial data after full discussion of the literature
Information sources 1

- Your supervisor
- Your colleagues/team members
- Online databases (Pubmed/Scopus)
- Library ejournals
- Books - good, but can be out of date
- Websites – careful, best avoided
- Peer reviewed published work is more reliable…
Information Sources 2

• Reviews are useful to familiarise yourself with the field but...avoid referencing reviews except to refer reader elsewhere

• Aim for recent reviews

• Use original peer-reviewed research articles – make sure you read and understand them
Structure

• Position and set the scene: why is it an important area?
• Body – contains the detail - use sections to keep it clear
• Use figures to help illustrate points raised in the text (better to use your own)
• Finish with a conclusion/summary to round it off – take home message
• Provide a link to your research question
Figures 1

- Actively encouraged - minimum of 3
- Figures need to be informative
- Try to construct an original summary figure
- Graphs – Pictures – Diagrams
- Colour is acceptable
- Do not make text too small to read
- Include a legend for each figure
Figures - 2

• Include a title line that succinctly describes what the figure shows (do not begin the legend with ‘This figure shows…’)

• Legend – *describe what is in the figure, expand abbreviations, explain any notations*

• If it is not yours, reference it

• If you have adapted a figure, reference the original source
Figure 1. Tributaries, selected gauging stations, ungauged areas and dams in the Yangtze River Basin (a), the Lake Dongting Basin (b) and the Lake Poyang Basin (c), respectively. TGR: Three Gorges Reservoir; GZB: Gezhouba. This map was created using ArcGIS 10.1 software (ESRI Corporation, Redlands, California, USA, https://www.arcgis.com/).
Tables

- Tables have headings
- Use footnotes to explain terms & abbreviations

### Table 1 | $\delta^{13}$C-based source attribution means for different periods.

<table>
<thead>
<tr>
<th>Source</th>
<th>0–1700 AD*</th>
<th>1985–2002 AD</th>
<th>2003–2013 AD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total fossil fuels†</td>
<td>51 ± 20</td>
<td>211 ± 33</td>
<td>195 ± 32</td>
</tr>
<tr>
<td>Fossil fuel industries</td>
<td>0</td>
<td>161 ± 24</td>
<td>145 ± 23</td>
</tr>
<tr>
<td>Geological sources</td>
<td></td>
<td>51 ± 20</td>
<td></td>
</tr>
<tr>
<td>Microbial</td>
<td>154 ± 19</td>
<td>330 ± 28</td>
<td>355 ± 27</td>
</tr>
<tr>
<td>Biomass burning</td>
<td>25 ± 5</td>
<td>43 ± 9</td>
<td></td>
</tr>
</tbody>
</table>

Values are given as mean ± one standard deviation in units of teragrams of methane per year. The biomass burning ranges are those prescribed in the $\delta^{13}$C mass balance. *See text and Supplementary Information section 6. †TM5 simulations of the latitudinal gradient and comparison with observations indicate a present-day $FF_{tot}$ range of 150–200 Tg CH$_4$ yr$^{-1}$ (see text and Supplementary section 7).
Figures & Tables

• Refer to ALL figures and tables in the text before the point at which they appear
Practicalities - 1

• Approximately 4000 words (guideline – flexible, 20-30 pages)
• Use 12 point font (e.g. Arial)
• Spacing at 1.5 lines
• Include a Title Page (must include DDP number, supervisor, department, registration number and your name)
Practicalities - 2

• Break into sections for each subject area – keeps a good structure
• Meaning of abbreviations should be given in the text or a list provided after contents
• Include a contents page
Contents Page cont.

• Word automated table of contents function will save a lot of time when writing your thesis – automatically updates

• Use link below or search for instructions

• Takes time to master – learn now

• Don’t go too deep with numbering e.g. 4.1.2.1.1
Practicalities 4 - References

• References **must** be done using a ‘reference manager’ (i.e. Endnote, Mendeley)
• University supplies & supports Endnote. Online and PC based versions
• Use ‘Author-date’ or ‘Harvard’ to aid the marker to validate your references easily
• Bibliography should be in alphabetical order
• References are not included in the word count
A number of mechano-sensitive channels, including TRP, MscS-like, Piezo, DEG/ENaC, and K2P, are known in non-plant systems (Arnadóttir and Chalfie, 2010; Hedrich, 2012). Animal TRP channels are well-known calcium channels that can sense changes in the membrane caused by fluctuations in temperature or osmotic pressure (Arnadóttir and Chalfie, 2010). Plants lack TRP and DEG/ENaC genes but contain a family of MscS-like proteins and one Piezo homolog (Hedrich, 2012). One of the MscS-like proteins in Arabidopsis, MSL8, is required for pollen to survive hypo-osmotic shock during hydration, suggesting MSL8 as a sensor of hypo-osmotic stress-induced membrane tension (Hamilton et al., 2015). Plants also have a large family of cyclic nucleotide-gated channels (CNGCs) as well as a family of glutamate receptor-like (GLR) channels that are potentially very important in generating cytosolic Ca$^{2+}$ signals under stress (Swarbreck et al., 2013).

REFERENCES


Scientific writing style

• Avoid long complicated sentences
• Avoid repetition
• Use mainly past or present tense, rarely use future
  - Deletion of *VEGFA* in breast cancer cells inhibited tumour cell invasiveness
  - *VEGFA* deletion inhibits tumour cell invasiveness
• Use both active and passive voice
  - The results support the hypothesis that..
  - This hypothesis is supported by..
Plagiarism

- **Plagiarism** is “passing off others’ work as your own, whether intentionally or unintentionally, to your benefit. The work can include ideas, compositions, designs, images, computer code, and, of course, words”.

- You must avoid cutting and pasting, and close paraphrasing (switching words around) of sentences, paragraphs, etc.

Plagiarism

• Is taken very seriously by the SGRC and consequences will be severe
• You may use Turnitin to check your first draft - use the information in the report
• Turnitin detects word strings, but identifies grammatical switching and word substitution in all published & local documents
• A Plagiarism Committee exists and makes formal warnings to plagiarists
• No excuses so talk to supervisor if in doubt
In practice

• Don’t copy chunks of text from reviews, papers or previous students’ literature reviews, transfer reports and theses
• These are all logged in Turnitin (includes MSc theses)
• You will be caught by Turnitin or markers
• Reference figures, images and diagrams you have recreated or modified - Copyright
Submission

- **Thursday 6th February 2020** (unless part time)
- **Extension will not be granted unless there are exceptional circumstances** (see new form)
- Submit via MOLE to course MED6950 Research Training - Literature Review (GRADUATE YEAR 2019-20) **AND** email one electronic copy to Carol Fidler (medicine-pgr@sheffield.ac.uk)
- Email reference manager library file to Carol so that we can verify it
After submission

- Your review will be checked via Turnitin before marking.
- Your supervisor and another member of staff knowledgeable in the area will mark your work.
Assessment & Feedback

Assessed on key areas, including:

- Literature coverage
- Critique & synthesis
- Context (scholarly & historical)
- State of the field/gaps in knowledge
- Disciplinary terminology
- Understanding research methods
- Significance of research (practical & scholarly)
- Structure & style
- Citations & references
- Spelling & grammar
Assessment & Feedback -2

• Assessment for each area
  - Achieved a high standard
  - Met expectations, room to improve
  - Below expectations

• Fail if 3 or more areas fall “below expectations”

• If you fail, you will have only one more chance to resubmit within 6 weeks of receiving feedback – pass mandatory for confirmation
Top tips

• Don’t summarise studies in a long list – synthesise, compare and contrast
• Make sure you use linking sentences at the end of paragraphs that lead into the next topic
• Make sure you have introduced a novel topic before going into detail
• Give specific suggestions for future research – relate to your project
• Original summary figure
• Novel topic and title? – publishable
Slides available at:
http://www.sheffield.ac.uk/medicine/current/postgraduates/ddp/med6950

Any questions?
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