Course introduction
Scientific Information Management course
Course introduction

1. Course introduction and course assessment
2. Library and information services at Lund University
3. Your information routines
Please introduce yourself to the other course participants

• Name
• Background
• Research area
• When did you start your postgraduate studies?
• Group number

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• Name signs
Lectures

• Search strategies
• Citation searching & Databases
• Bibliometrics by Fredrik Åström & Scientific communication by Jörgen Eriksson
• Managing Research Data – an introduction by Maria Johnsson
• Reference management
• Workshop & Final seminar
Dates for the course

• Lectures 2 October – 18 October

• Workshop and report draft group presentations/discussions 11 October (mandatory)

• Individual project work & Data management plan (group), deadline 24 October

• Final Seminar, 15, 19, 20 November (mandatory)

• Course web page: http://libguides.lub.lu.se/SIM
Assignments

- Citation searching
- Database assessment
- Database searching
- Open access & Bibliometrics
Task Data management plan

To learn how to establish a data management plan as part of the research application process. To reflect on the different data life cycle phases the research data will go through during the project.

To reflect on the different aspects of research data management in general. This means that you should: Select a research project, fictive or real project. Create a data management plan for the selected project with help of the template. Reflect on your impressions of creating a data management plan, some further questions in the template.
Task: Individual project

• The goals of the project work are:

  - To reflect on information retrieval tools, information structures and strategies within your research field. To analyze communication/publication channels covering your area of research. To train your ability in communicating matters on information management. This means that you should:

    - Formulate a basic information search strategy for your research field
    - Select information retrieval tools (bibliographical databases, Internet tools…) covering your area of research. Describe and discuss your selection of information retrieval tools
    - Reflect on the quality of and relevance of the information sources found using these tools
    - Identify the important channels for scholarly communication in your research field (journals, conferences…), and motivate your selection of channels
Library & information services at Lund University

• Webpages:
  http://www.lth.se/english/
  https://www.lub.lu.se/en/

University Library network – about 25 libraries (Lund, Helsingborg, Malmö)

The Faculty of Engineering libraries are (LTH Libraries):
• Civil Engineering Library
• Library of Architecture and Design
• Library of E-huset
• Study Centre Library

Libraries that are shared between the Faculty of Engineering and the Faculty of Science:
• Library of Chemistry and Chemical Engineering
• Library of Mathematics
• Physics and Astronomy Library
Library & information services at Lund University

- LUBcat catalogue & LUBsearch & LIBRIS
- Research Portal (LU research repository) - Find researchers, research outputs (e.g. publications), projects and units at Lund University. http://portal.research.lu.se/portal/en/
- Borrow books & library card
- Interlibrary loan
- Subject guides http://www.lth.se/english/library/subject-guides/
- Research support (custom made lectures, publishing support and more)
- Contact and opening hours http://www.lth.se/english/library/contact-and-opening-hours
Your information routines: Sources

<table>
<thead>
<tr>
<th>Source</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject specific</td>
<td>3</td>
</tr>
<tr>
<td>ResearchGate</td>
<td>3</td>
</tr>
<tr>
<td>ScienceDirect</td>
<td>3</td>
</tr>
<tr>
<td>LUBSearch</td>
<td>2</td>
</tr>
<tr>
<td>Nondescript</td>
<td>2</td>
</tr>
<tr>
<td>Specific document type</td>
<td>2</td>
</tr>
<tr>
<td>Experts/researchers</td>
<td>2</td>
</tr>
<tr>
<td>Google Scholar</td>
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<tr>
<td>Google</td>
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<tr>
<td>Colleagues</td>
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<tr>
<td>LU library resources</td>
<td>1</td>
</tr>
<tr>
<td>Scopus</td>
<td>1</td>
</tr>
</tbody>
</table>
Your information routines: Strategies

- Alerts/subscription: 6
- Database searches: 4
- Recommendations: 2
- Not actively seeking literature: 1
Group discussions about your information routines!

- Tell the group about how you normally find (or find out about) literature relating to your research topic.

- Discuss what you think works well, and what doesn’t, with your current routines.

- Summarize main points for the whole class.
Your information routines: Needs

- Reference management: 6
- Searching: 4
- Source evaluation: 2
- Publishing: 1
Main strategies of literature searching

**Citation searching**
Exploring the network of literature around a known node (usually a "pearl paper").

**Database searching**
Performing keyword searches in general or subject specific database.
Citation searching

Bibliography
Look up your pearl papers references.

Citing literature
Look at who is citing your pearl paper using a citation database.

Authors, co-authors
What other papers have the authors of your pearl papers published? What other researchers are they collaborating with, and have those people written anything else on this topic?

Journals
What else has been published in the journal/conference of your pearl paper? Where does the authors of your pearl paper usually publish their research?
Database searching

- Locating relevant databases
- Identifying suitable keywords
- Combining the keywords using the right search operators
  (+ utilizing whatever other search features the database offers)
Main strategies of literature searching

For a comprehensive literature overview, these strategies must be combined!

If starting out with a database search, once your keywords are exhausted you use the relevant papers you’ve found as the basis for a citation search.

When beginning with a citation search, collect keywords from papers and use for a separate database search.
Thinking about your search strategy in terms of precision - recall might be helpful when evaluating it.

\[
\text{precision} = \frac{\text{relevant documents retrieved}}{\text{documents retrieved}} = \text{the percentage of search results that are relevant}
\]

\[
\text{recall} = \frac{\text{relevant documents retrieved}}{\text{relevant documents in database}} = \text{the percentage of all (available) relevant document that a search retrieves}
\]

A perfect search is high precision-high recall. But usually linguistic ambiguity and variation means your search strategy will involve a tradoff between the two. For example, deciding not to use an ambiguous keyword or not to pursue an ambiguously titled reference in a bibliography would mean prioritizing precision over recall.

Precision can be calculated, whereas recall can usually only be estimated.
High precision – high recall

Example: Retrieving all articles from a specific journal a specific year. These are usually easy parameters to set in the databases.
High precision – Low recall

Example: Trying to find all papers by author Jane Doe using search query “jane doe”. Retrieves mostly results by the right author (but also a few by namesake Jane Doe Smith). Misses a lot of papers that lists Jane Doe only as J Doe.
Low precision – High recall

Example: Trying to find all papers by author Jane Doe using search query “j doe”. Retrieves almost all papers by this author (save for a few she published under maiden name Jane Deer). But also retrieves all papers by John Doe, Janet Doe etc.
Precision-Recall

Wether you prioritize precision or recall depends on your research situation. For example:

- You’re doing a systematic literature review, so you’re supposed to analyse all relevant research on a specific topic. You’ll be expected to aim for a very high recall, meaning you’ll have to go through a lot of irrelevant abstracts.

- You’ve been asked by reviewers to take into account the works of a certain researcher. This research will only amount to a sidenote in your paper, plus you’re in a hurry to get the revised paper resubmitted. So you’ll settle for any one reference of this researcher’s, meaning you’ll probably prioritize high precision.

How far along you are in your research process also affects priorities. Early on, search strategies are usually more explorative and broad, i.e. high recall (though “relevance” may hard to pinpoint at this stage). Later, searches often become more focused, i.e. high precision.