

STATISTICS: Postgraduate overview

This postgraduate overview is an introductory session, with examples, for:

- Accessing library resources to find relevant academic materials and research.
- Doing a literature search to find relevant items.

Perhaps replace these examples with Stats-related searches of interest to you.

This online handout was used for hands-on workshops, in March 2016, for postgraduate students in the Statistics Department; and has been updated for Semester 2.

It may be used as a self-guided introduction.

Do contact [Michael Parkinson](#) (your Subject Librarian) for any help.

Please log on

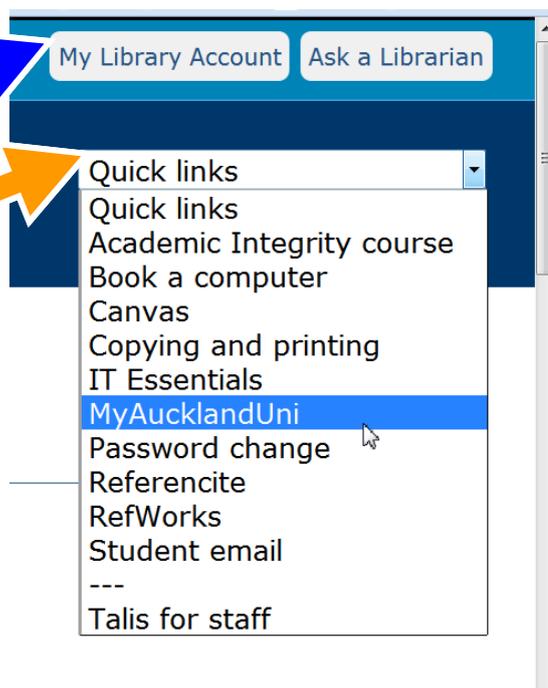
- a) Log on with your **username** (eg, *gga/839*) and your password.
- b) Open an Internet browser — eg, *Firefox*.

Note the UPPER RIGHT corner of every Library page:

My Library Account

My Library Account

The **Quick links** menu also has useful connections



Expected abilities of a BSc Graduate

An ability to find information, and evaluate it critically.

An ability to use, manage, present, and communicate information [...]

A level of numeracy and computational literacy [...]

— *Graduate profile* (www.science.auckland.ac.nz/en/for/current-students-4/undergraduate/graduateprofile.html Accessed 11/07/2016)

This guide will help you improve your abilities for finding information and evaluating it.

Exercise #1

Research tips

1. Find the **Statistics subject guide** <<http://www.library.auckland.ac.nz/guides/science/statistics>>
2. Bookmark this page
3. Click the **Research tips** Tab for a page like this ...

The screenshot shows the 'Statistics' subject guide page. The 'Research tips' tab is selected. The 'Doing a literature search' section is highlighted with an orange rounded rectangle and an arrow pointing to the text below. The page includes navigation tabs like 'Key databases', 'Other', 'E-books and e-journals', 'Data sources', 'Research tips', and 'Referencing'. It also features a sidebar with 'What's new?', 'Need more help?', and 'Attend' sections, and a right-hand sidebar with 'Related guides', 'For researchers', and 'Other links'.

Doing a literature search

This *Research tips* section links to advice on:

1. [The topic, context, and treatment](#)
2. [The search itself](#)
3. [Evaluating your search results](#)

[Each link either opens or downloads a PDF, depending on your browser.]

Please revisit this site when you have a **real** topic, problem statement, or research question. These guides are more effective when you are applying them to a topic of personal interest or a genuine literature search that you require

But, in the meantime, here is an overview ...

§1 The topic, context, and treatment

Research tips

Establish the *problem statement* or the *research question*.

Know the background.

Perhaps use review articles.

Always focus on YOUR intended treatment.

Some key questions ...

Q. What really is your topic?

[The *problem statement* / *research question*]

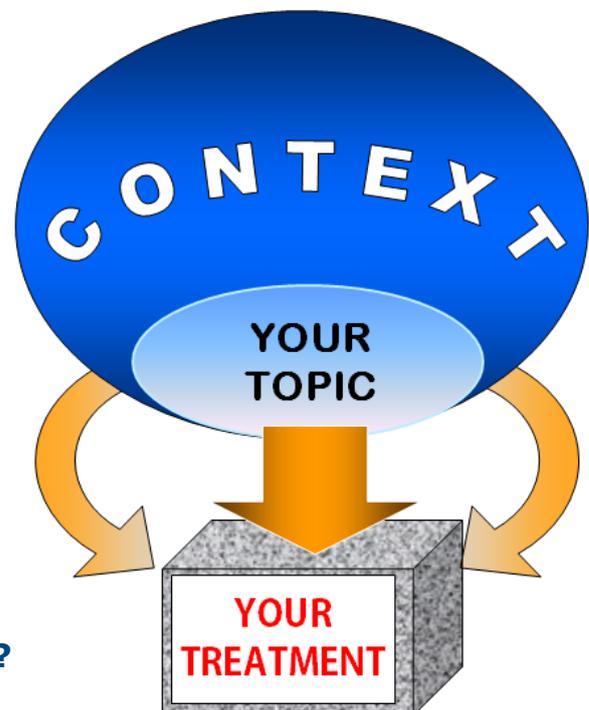
Q. What is the **CONTEXT**?

- Background and assumptions.
- Related concepts and topics.
- Subject-specific methodology, etc.

Q. What is **YOUR** treatment going to be?

Consider your intended **AUDIENCE** and **PURPOSE**.

- What level of detail is appropriate?
- Are there local factors that may not be covered well in the research literature?
- Are you obliged to ...
 - Use a particular format — including word-length, layout, citation style, etc?
 - Assume a specified approach — conditions, hypothesis, methodology?
 - Include or exclude certain material?



Revisit the **Topic, Context, and Treatment** when you have a genuine topic.

Assume that we already have a *Research question* or topic, and an idea of what information we need.

Let's try some searches ...

§2 Databases, in general

For an assignment, the database may be specified.

Otherwise, use the [subject guide](#) or seek Subject Librarian help (especially for a major project).

At this point we would choose a database, hopefully with an idea of suitable search terms.

One strong strategy is:

1. "Stating the problem in a way that will allow a solution".
2. Crafting the answerable question.
3. Knowing just how much information you need.

(after MacLeod, 2012)

Sometimes, it's OK to just start searching relevant databases with likely terms — but be prepared to start over again, once you have discovered **what** you *should* have been searching for ... and **where**.

What are databases ?

A broad range of **searchable, online** materials including:

- Online **indexes**, usually with abstracts or reviews — eg, [MathSciNet](#) ; [Scopus](#).
- Collected **full-text** material from specific vendor/publishers — eg, [SpringerLink](#).
- A single encyclopaedia or dictionary, or a collection of them — eg, [Oxford Reference Online](#).
- Collections of particular **documents** such as standards, patents, academic archives, preprints, theses, newspaper stories.
- Collections of specific **formats** such as images, audio, video.
- Collections of **numeric** data ... such as statistical data, citation data, geospatial data, etc.

Databases vary in what they contain and how much of it.

Consider, for each database ...

Its ease of use

Intuitive layout? Search options? Search tips? Clear and relevant help?

Getting the output

Is the full text easily accessible? Easily downloaded?

Alerts or updates

Are they possible for on-going projects or for subjects of interest?

Reference management

Are details easily exported to RefWorks, or EndNote, or BibTeX, or Mendeley, or ...?

Ideally, the answer to all these considerations is YES.

A Key database for Mathematical Statistics

MathSciNet is an **INDEX**, so the Library does not automatically hold your search results. MathSciNet is of limited use for some assignments, but important for *advanced* study or research.

Strengths

- **Reviewed** items — the database began as the journal *Mathematical Reviews* in 1940.
- Includes many books and papers in books/proceedings, as well as journal articles.
- **Links** to full-text items ... which may still be available elsewhere, if these links are inactive.

Special features

- **MSC** codes. For example, [62](#) (1940-now) Statistics
 - [62F](#) (1973-now) Parametric inference
 - 62F15** (1973-now) Bayesian inference
- Excellent author indexing.
- Linked references and citations.
- Results are exportable as BibTeX.

Other "features"

- No alert system for searches — although there is RSS for journal contents.
- The results from **only one** search at a time.
- Results are displayed only by [approximate] reverse date — ie, NOT by relevance.
- Most journals are (*now*) indexed cover-to-cover.

Exercise #3

Search MathSciNet for

Anywhere: *Bayes**
AND Anywhere: *cosmolog**

Or, by yourself, Anywhere: *MCMC or Metropolis or "Monte Carlo"*
AND Anywhere: *DNA*

Or, by yourself, **any search** of your own devising.

§4 Scopus

A key multidisciplinary database

Scopus is an **INDEX**: so, again, the Library doesn't necessarily hold your search results.

Strengths of Scopus

- Intuitive and fast.
- The links to full-text are highly reliable: use the "**View Full Text at Publisher**" link.
- Do your search, then **refine** as necessary — by year, document type, etc.
- Automatically searches variant spellings, plurals, etc.
- You may combine several searches.
- Easily understood Reference/Citation information — so you may use citation searching.
- Find further items **related** to existing items — by shared references, or keywords, authors, ...
- May **download multiple** full-text results ... usually.
- Personalised log-in enables you to save searches, save results in lists, create **Alerts**.
- Exports records to BibTeX, RefWorks, EndNote, Mendeley, etc.

Exercise #4(a)

Create a personalised login for [Scopus](#).

Please use **Firefox** or **Internet Explorer** — the subprogram to *download* full-text PDFs *directly* from your search results is very convenient, but does NOT work with later versions of Chrome.



At the Scopus page,

click the **Register** link.

A screenshot of the Scopus website interface. The top navigation bar includes the Scopus logo, "Scopus SciVal", a "Register" button, "Login", and "Help". Below this is a secondary navigation bar with "Search", "Alerts", "Lists", and "My Scopus". The main content area features a search bar with a placeholder "Search for..." and a dropdown menu set to "Article Title, Abstract, Keywords". Below the search bar are filters for "Date Range (inclusive)", "Document Type", and "Subject Areas". The "Date Range" filter is set to "Published All years to Present". The "Document Type" filter is set to "ALL". The "Subject Areas" filter has three checked options: "Life Sciences (> 4,300 titles .)", "Physical Sciences (> 7,200 titles .)", and "Health Sciences (> 6,800 titles . 100% Medline coverage)". On the right side of the interface, there are several utility links: "Learn more about how to Improve Scopus", "Stay up-to-date on Scopus. Follow @Scopus on Twitter", "Watch tutorials and learn how to make Scopus work for you", "Get citation alerts pushed straight to your inbox", and "Get started with Scopus APIs".

At the next page, fill in the boxes marked with red asterisks (*)

The image shows a registration form with the following sections:

- Your details:** Includes 'First name:' and 'Family name:' text boxes, each with a red asterisk and a red arrow pointing to it.
- E-mail and password:** Includes 'E-mail address:' and 'Password:' text boxes, each with a red asterisk and a red arrow pointing to it. A link for 'Password Guidelines' is next to the password field.
- Additional options:** Includes a link 'Add profile details', a checkbox 'I wish to receive information from Elsevier B.V. and its affiliates concerning their products and services', and a checkbox 'I have read and understood the Registered user agreement and agree to be bound by all of its terms.'.
- Register:** A button at the bottom with a blue arrow pointing to it from the text below.

and **Register**.

Exercise #4(b)

Search Scopus for

population dynamics [in Article Title, Abstract, Keywords]
 AND *"time series" analysis* [in Article Title, Abstract, Keywords]

Or, by yourself, *Bayes* cosmolog** [in Article Title, Abstract, Keywords]

Or, by yourself, **any search** of your own devising.

How could these searches be improved?

Proximity searches; perhaps use specialised fields.

Citation searching

- A complementary alternative to key-word searching.
- Can search for "descendants" of any papers or books that are critical to your research.

Scopus is a good database to try citation searching and creating alerts ... but it is not the only one!

QUESTION: Why is full-text searching useful?

Choose **one** of the first three databases on this tab:

[SpringerLink](#) or [CRCnetBASE](#) or [Wiley Online Library](#)

University home » Library » Guides » Science » Statistics

Statistics

Key databases | Other | **E-books and e-journals** | Data sources | Research tips | Referencing

Full text databases

- SpringerLink**
 All new Springer-Verlag titles, most old titles, and items from related publishers — As of July 2016, full-text access to 5.4M articles; 2600 journals; 2.4M chapters; 120k books; 415k reference entries! You may download PDF of entire chapter/paper; multiple users may access the same item simultaneously.
- CRCnetBASE**
 "Advanced Search" is strongly recommended ... Permits multiple users to access the same item simultaneously; May download PDF of entire chapter! As at July 2016: over 12k books (all subjects); 575 in Statistics.
- Wiley**
 Journal articles and e-books ... including some encyclopaedias): may download PDF of entire chapter/paper; permits multiple users to access the same item at the same time; easy searching (variant keywords, etc); most recent books are available full-text; but not all Wiley books are available electronically — As at Feb 2015: approx 630 Statistics e-books and 50 Journals.
- SAGE Research Methods**
 A searchable database from SAGE Publications designed for researchers and students of social and behavioural science subjects.
- ScienceDirect**
 Titles from Elsevier or related publishers; "Advanced Search" is strongly recommended! As of July 2016: over 20k books; 27k book-series volumes; 95 reference works; 57 handbooks; and many journals immediately available — Good coverage in Statistics, Decision Sciences, etc; May download PDF of entire chapter/paper; Image searching; Links to Scopus citation data ... Unavailable items may be requested through Interlibrary Loan.
- OECD iLibrary**
 Books, reports, journal articles, papers, and statistics — and the gateway to OECD's analysis and data.
- ArXiv.org**
 E-print archive — may specify Statistics or search all collections; may also search by MSC or browse a "catch up" list of item.
- Oxford Reference Online**
 A collection of subject-specialist dictionaries, encyclopaedias, etc, covering all subject areas — particularly useful when applying your statistical knowledge to other fields.

Subject Librarian for M: St

Attend
Workshops

Browse
Study skills

EXERCISE #5: Perform a search of your own choosing

For each table, introduce yourself to your neighbour(s) and decide who is searching which database. Perhaps do a similar search? That's not so important.

Some of these resources are reasonably intuitive to use.

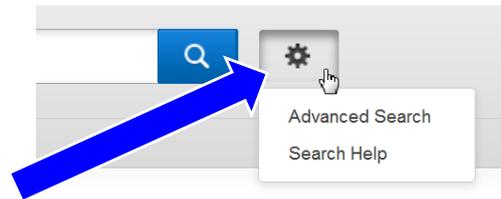
If necessary, see the following sections for help.

What did you NOT like about the search or the results for that database?

§5 (a) SpringerLink

Strengths

- FULL-TEXT searching.
- Many journals are available from Volume 1 onwards.
- Easy to access and print/save a whole chapter or paper.
- Excellent source material.
- Usually the **Advanced Search** is best: Click on the cog.



Search

Home • Contact Us

Advanced Search

Find Resources

with **all** of the words

with the **exact phrase**

with **at least one** of the words

without the words

where the **title** contains

e.g. "Cassini at Saturn" or Saturn

where the **author / editor** is

e.g. "H.G.Kennedy" or Elvis Morrison

Show documents published
between and

Include Preview-Only content

Other "features"

- Export *individual* records to BibTeX, EndNote, Mendeley, etc.
- No search history, although some editing of your current search is possible.

Strengths

- FULL-TEXT searching.
- A publisher's electronic delivery system.
- Many journals available from Vol.1 onwards.
- The **Advanced search** is usually best.
- Can easily access and print/export a whole chapter or paper.
- Good coverage: includes 600 Statistics books, many are recent titles.
- Very versatile searching — see the "Search Tips" opposite the *Advanced Search* form.



Other "features"

- No search history, but does have a breadcrumb trail.
- Non-electronic books may be available in print.

§ 5 (c) Wiley Online Library

Strengths

- FULL-TEXT searching.
- A publisher's electronic delivery system.
- Advanced search is usually best.
- Very versatile searching — see the Search tips link.
- Can easily access and print/export a whole chapter or paper.
- Many journals are available from Volume 1 onwards.
- Good coverage: including 600 Statistics books, especially recent titles.
- Includes the *Encyclopedia of Statistical Sciences* and the *Encyclopedia of Biostatistics*.

Other features

- No search history, but does have a breadcrumb trail.
- Non-electronic books may be available in print.

§6 Evaluating your results

Research tips

See the *Research tips* link, [Evaluating your search results](#).

Revisit that page when you have a real Topic or Problem statement — ie, when you need the **criteria** to evaluate **real** search results.

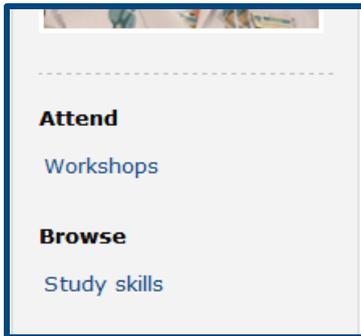
The crucial question is

Are the results fit for purpose?
That is, **RELEVANT** and **USEFUL** for the topic and for YOUR treatment.

But also ...

Give yourself enough time to actually READ and USE your search results.

§7 Need more help?



See the links at the bottom of the LEFT column of the Subject Guide: [Workshops](#) and [Study skills](#).

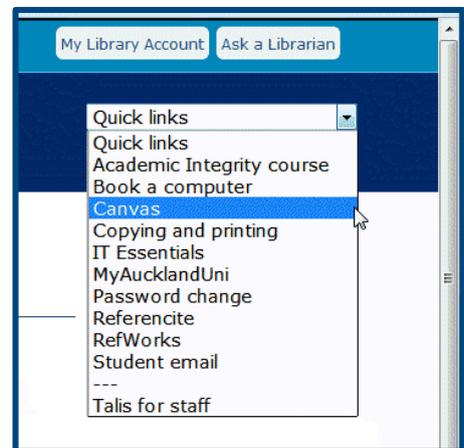
Many of these are from Student Learning Services who have a suite of guides, presentations, and hands-on sessions at various levels.

The **postgraduate** resources and workshops include:

- Academic writing: Research proposals, Thesis writings, etc.
- Communicating & Presenting: posters; Oral presentations.
- [English Language Enrichment \(ELE\)](#)

§8 Other right column links

My Library account and Quick Links were mentioned above.



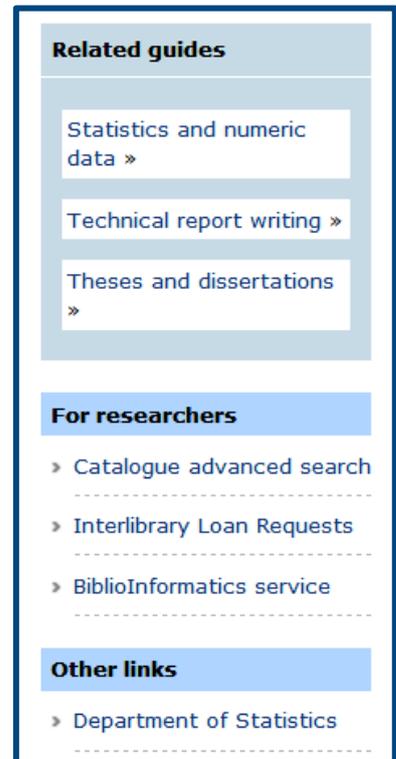
But note, also in the RIGHT column, the

Related Guides, including:

- Statistics and Numeric data.
- Finding [Theses and dissertations](#).

For researchers

- [Catalogue advanced search](#).
- [Interlibrary loan requests](#).



Reference used

MacLeod, D. (2012). *How to find out anything: From extreme Google searches to scouring government documents, a guide to uncovering anything about everyone and everything*. New York: Prentice Hall Press.