

Reading and Note-taking for Science Students

Need to read a number of texts for non-Science subjects?

Many students are increasingly taking classes outside of their field. Science students sometimes struggle to meet the reading demands of non-specialist subjects. The brochure provides some study skills and strategies for managing reading and taking notes.

Planning

A first step is to be sure of your reading requirements. Students are often unaware that reading lists and recommended reading guides are provided in most breadth subjects. Before you start your classes and during the semester it is important that you dedicate time to reading. Some useful strategies are to

- Find your recommended reading list
- Put aside some time to prepare for each tutorial or lecture. A few hours of reading for each class twice a week will ensure that you maintain focus.
- Draw up a weekly, monthly, or semester-length calendar, mark off time when you will concentrate on reading.
- Prepare and organize a 'reading log'. This can be used to calculate the amount of time you have spend reading. It can be useful to reflect on your time management, record what exactly you are reading and whether that is appropriate, as well as a record of achievement.

Feeling 'lost'

If you find that you are reading articles and cannot understand the point of the article, you might need to do some foundational reading. Find some generalist textbooks or books on the subject and read introductory chapters to get a feel for the subject. A time-saving device might also to read online materials, be careful though, this material is not usually appropriate to cite or quote in academic essays. If you are still feeling lost, you might meet with other students and discuss some of the issues, themes, or ideas raised in required reading. As a final point of call, you could ask you tutor for additional resources



or guidance. Remember though that the tutor often sets reading tasks for you to interact and reflect on a text.

Note-taking

Why spend a lot of time reading when you might simply forget? Note-taking is a crucial tool. As many breadth subjects require students to read widely, it might not be possible to focus intensively on one or two articles. In this case, you may start to fall behind. If you are not fully on top of a subject, it might be because you are not attending to your notes.

Contrary to many students' expectations, reading does not have to be a dry, mechanical process. There are many excellent learning skills tools for taking interesting notes. Educationally, it is worth noting that retention of facts, ideas, and theories are enhanced by regularly reviewing what you've read at different intervals. This varies from person to person. However, it can be said that students often benefit from reading, taking notes, and then reviewing a day or two after, followed by once a week in the following weeks, and then more infrequent periods in the subsequent months.

Note-taking Strategies

There are many popular strategies for note-taking. These include the SQR3 method, the Cornell Method, and the Coding Method.

SQR3

This method stands for Survey, Question, Read, Recite, Review. Using this approach, students see reading as distinct stages. It might seem contrived at first but this strategy helps in developing good reading habits. First, gain an impression of the text – what is it generally saying? Second, develop questions, or alternatively identify the main thesis/question in the passage and try and find an answer. Third, closely read the text, making notes or details. Fourth, recall and recite some of the major points through a written or verbal summary (helpful in study groups). Finally, review your notes and the reading on a regular basis, particularly review the major ideas you got from the text.

Cornell Method

This reading approach sees readers divide their page into (usually) three columns. The first column is for major themes or ideas. A second column is for more detailed points and examples; a final column is for critical evaluation of the main ideas in the text. This approach can be done while reading or as part of a review of summary approach. Of course, it is helpful to identify the major points and review regularly.

Coding Method

A coding method is useful for doing critical evaluations or reviews. By creating a grid (it's helpful to use large paper or computer spreadsheet), visual learners are assisted in being able to make visual connections between research ideas.

Example coding sheet

Author	Field/Theory	Method	Finding	Evaluation
Joyce, J.	Feminism	Interviews	High school girls express an interest in studying maths and science in early years of secondary school in Melbourne	Is the same true in other cities in Australia?
Carroll, B.	Post-Modernism	Action Research	Identity constructions of scientists in the media has an effect on schools	Are the same images presented in school textbooks?
Murphy, H.	Positivism	Quantitative methods	Statistical analysis of high school students performance on maths test showed stronger results in inner city suburbs	There were more scores recorded in cities than country high schools. Is this a problem?

Additional Tips

Reading in breath subjects requires the skill in shifting perspectives, information triage, and attention to detail. Although there may be hundreds (sometimes thousands) of articles on a subject in your course, it is worthwhile to consider some of the following strategies.

- Pay attention to key articles that are mentioned by your lecturer/tutor. These may be mentioned in lectures, in reading lists, or simply in passing. Whenever resources are printed and delivered to students, they have been selected for a reason. Usually because the lecturers believe them to be excellent, important articles that are going to make you think.
- Look for recent articles. Although many articles may be referred to, the most recent articles are generally those that express contemporary thought on a particular subject. Quite often, important earlier readings may be raised in newer articles, and it is also possible to refer back yourself. Nevertheless, by reducing your reading load to articles that are quite new (say in the past 5 years, possibly 10 years), your reading load is likely to be more focused and less burdensome.

- Use your knowledge of general theories or trends. As within the sciences, students are required to learn about different fields and debates on particular topics. In social sciences, the situation is no different. Indeed, there is likely to be a number of different debates that it is hard to access. One way is to learn about the major 'camps' in your subject and the general theories behind them. There are a number of over-arching theories and once you get the hang of them, you have a conceptual framework to understand details. Coding the different approaches has been proved effective.
- Check introductions and conclusions of research paper. If you subscribe to the view that academic papers should present a research question/topic/problem in the beginning of the paper and answer or provide evidence in the conclusion, then you may start to see argument illuminate. If you feel in darkness about what the point of an article, see if you can extract a research question from it or summarize the research finding.
- A skill in using a range of articles is to synthesize this knowledge together and make it your own. This is fundamentally a creative exercise. Be truthful and report findings faithfully, but also don't be afraid to put your own stamp on what you've read. Including statements like '(A) found evidence of discrimination in hiring practices'. Fundamentally, you need to take away an idea or finding from each article you read.
- A further tip in reading is to go global when you are reading a lot of articles. Social science reading relies less on remembering formulas and minute details, then looking for global big picture ideas and working from there. Being able to make moderate, informed generalizations about what you read is one step in the process.
- Critical evaluation is as much the way you present your ideas as it is approaching the text.
- Reading is advanced through practice. Much like building knowledge in statistics or chemistry, advanced reading takes time and practice.