ACADEMIC SKILLS

for interdisciplinary studies

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Amsterdam
University
Press

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Preface

This handbook is the outcome of years of experience with interdisciplinary teaching and academic skills at the Institute for Interdisciplinary Studies (IIS) at the University of Amsterdam. Earlier versions of the text have been in use – in the form of syllabi – for more than a decade of teaching for the combined Bachelor's programme in the natural and social sciences. The content thus builds upon the knowledge and experience of the dozens of lecturers and thousands of students who worked or studied at the IIS during this period. In addition, we have made grateful use of the great wealth of existing textbooks on specific academic skills. A wide range of textbooks has been published on every academic field and on every individual skill. To our knowledge, this is the first overarching guide to academic skills for interdisciplinary studies. Taking such a broad perspective means that we are unable to be comprehensive. For more specific or detailed information, this book provides many references to texts that contain more information on specific skills. Besides, a handbook like this one is never 'finished'. New perspectives, tips, examples, methods and insights are always being developed that contribute to this book's ultimate aim: to help interdisciplinary students to learn the essential skills needed by every budding scholar.

Finally, a word of advice for the reader: use this handbook as a guide, not as the only 'right' way to learn, read, write or present. Within the different fields and disciplines, there will be differences in the details or in the emphasis on particular aspects.

Acknowledgements

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Introduction

This book is intended for Bachelor's students on interdisciplinary degree programmes. Nowadays, Dutch universities and universities of applied sciences offer countless interdisciplinary courses. A decade ago, this was still quite unusual. During the 19th century, universities were divided into three relatively well-defined clusters of academic disciplines: the sciences, which investigated natural phenomena (in the broadest sense of the word); the social sciences, which focused on knowledge of human behaviour and human societies; and the arts, which studied the knowledge originating from the human mind.

These three clusters were further categorized into a wide range of academic disciplines, such as physics (science), sociology (social science) and history (the arts). In past centuries, these disciplines were in turn sub-divided into specializations and sub-specializations, such as quantum mechanics, sociology of education and naval history. At most universities, this classification is reflected in the degree programmes that are offered. The knowledge produced by these academic disciplines and specializations is far-reaching and enriching. This is particularly true if ideas from different fields are combined, which often leads to valuable insights. When scientists were trying to understand the structure and nature of genetic material in the mid-20th century, for example, it ultimately took the combined efforts of a biologist (James Watson), a chemist (Rosalind Franklin) and a physicist (Francis Crick) to identify the composition and structure of DNA. If they hadn't been interested in – and knowledgeable about – each other's disciplines, they would never have achieved this feat. They had the ability, however, to integrate three seemingly distant fields and to generate new knowledge that has literally changed our world. Taking an interdisciplinary approach also delivers important insights when it comes to today's complex problems, such as environmental issues or questions relating to the functioning of society. Interdisciplinary programmes therefore aim to train bridge-builders who, in addition to their speciality, have an overview of a number of fields, and who can integrate knowledge from one branch of learning with knowledge from another.

> *'We are not students of some subject matter, but students of problems. And problems may cut right across the boundaries of any subject matter or discipline.'*
> Karl Popper
> (*Conjectures and Refutations*, 1963)

As a student on an interdisciplinary programme, you're a bit like a parachutist: in the years to come, you'll find yourself landing in many different academic landscapes. As you do so, you'll develop the ability make a swift survey of the surroundings (the academic field), analyse what information is present and what is useful (research), master the local language and way of thinking (jargon), and learn to communicate (sharing knowledge). This handbook on academic skills will enable you to do all of the above. Academic skills are tools that can be used during and after your course to gather, develop, share and discuss new knowledge. Over the years, you'll develop your own style in relation to every skill. In the initial years of your programme, you can use this book to find your footing. In the later phases of your studies, though, you'll find yourself referring back to it when wondering 'How did that work again?'. We hope that this book proves to be a good and, most importantly, useful starting point for your own academic and interdisciplinary development.
In the first part of the book, you'll find information about how to gather information efficiently. In the second part, you'll read about how to design and conduct your own literature research. The third part concerns how to communicate the knowledge you've acquired to colleagues or a more general audience. The handbook concludes with a section on critical thinking and ways to evaluate and improve your own knowledge and skills

Part 1
Studying

'A university is not about results in the next quarter; it is not even about who a student has become by graduation. It is about learning that molds a lifetime, learning that transmits the heritage of millennia; learning that shapes the future.'

(2007)

Drew Gilpin Faust (1947)
American historian and the first female President of Harvard University

In Part One, we look at how you can make the most of the material you need to study. How do you draft a study plan, and how can you get the most out of the lectures? What's more, we present practical tips that can help you to get as much as possible out of your university education.

1 Studying

Lecturers often explain in detail what you need to learn for their courses, but it is much less common to be told how you should learn it. In this chapter, we look at how you can study effectively and efficiently. We also offer practical tips to help you prepare as well as possible for lectures, study sessions and exams.

A university is a place where a diverse group of knowledge-driven individuals come together to challenge each other to improve and refine their thinking, and to enrich the world with new insights and inventions. New theories are devised, innovative techniques are developed and new discoveries are made. You're now part of that world. You're studying because you're fascinated by something, because you want to know everything about a particular subject and want to get to the bottom of it. In addition, at university you'll develop specialized skills and meet many interesting people. It's where you'll spend at least three years of your life, perhaps even longer. Many people describe it as the most enthralling and fun time of their lives, not least because studying allows you to contemplate and question the earthly (and perhaps also the heavenly) world for a while from a neutral standpoint. It is a time when you'll develop a rich understanding of the world and clarify your own position in relation to the things and people around you.

Knowledge

Knowledge lies at the heart of university education. Your task is not only to absorb knowledge, but also to create and transfer it. Benjamin Bloom (1913-1999) argued that thinking takes place on different levels. He started at the basic level, 'remembering', and built up various steps to the highest level, 'evaluating' (see Box 1.1).

Box 1.1
Classification of knowledge levels
(based on the taxonomy of Bloom, 1956)

Knowledge level	You are able to…
Remembering	…reproduce knowledge.
Understanding	…interpret this knowledge and explain it in your own words.
Applying	…use knowledge in new situations.
Analysing/ synthesizing	…organize and formulate knowledge for new ideas.
Evaluating	… evaluate knowledge critically and apply it beyond your own field.

Lying behind this classification is an interesting message: that you go to university not only to learn lots, but also – perhaps even more so – to start using this knowledge actively: to learn a particular way of thinking. Thus you distinguish yourself as a scholar by not only being able to spout facts and understand things, but also because you can take a step further: you can apply, analyse and evaluate existing knowledge, and ultimately create new knowledge and value. This is added value for employers, too: they are not looking for highly educated workers who obediently obey orders, but for employees who are able to evaluate and improve the functioning of an organization.

Interdisciplinary tip

Although Bloom's classifications might imply that it is most useful to focus on evaluating, analysing and synthesizing, it is important to realize that every kind of thinking is essential for interdisciplinary studies. Howard Gardner (2007), for example, identifies 'five minds for the future', all of which are important: the disciplinary, synthesizing, creating, respectful and ethical attitudes. Without a good disciplinary attitude (you can master a way of thinking, such as mathematical or sociological thinking), neither the synthesizing (bringing together different disciplines) nor the creating (uncovering and building new trans-disciplinary knowledge) attitudes would be possible.

Lectures and study groups

Lectures and study groups form an interesting and important part of taking a course. During lectures, the course material will be explained further, but you'll also have a chance to get working actively on the material. It's important for you to think about how you can get the most out of the lectures. You'll find a number of tips in Box 1.2.

Box 1.2
Checklist for lectures

Beforehand	Plan in **preparation time** for a lecture (depending on the amount of material), when you read through the handouts or the literature (if the handouts are not already online) for the lecture.
	Check the learning aims of the course or lecture. These are usually available in the course handbook. Ask yourself: why this subject? How does it fit in with the rest of the course?
	Scan through the **literature** (headings, keywords, etc.) and ask yourself whether you are familiar with these concepts from other courses or other contexts. Are you able to define them? Now is a good moment to look them up again.
	Make a list of all **keywords**. This list can form the basis for a mind map, a summary, or a way of testing yourself.
	Find out about the speaker's **background**, so that you can anticipate what he or she might have to say.
	Write down a few **questions** that you hope might be answered during the lecture. If they do not come up during the lecture, ask them at the end.

During	Ensure that you are **on time** and arrive well prepared (with a highlighter, pen, pencil, etc.), so that you don't miss any important information.
	Choose a good seat, where you have a clear view of the lecturer and presentation, with minimum distraction.
	Pay attention and take note of which of your questions are answered.
	Write down the essentials. Most information is usually included in the hand-outs or on the slides. Underline or highlight the concepts that are emphasized by the teacher.
	Ask **questions**.
After	Develop your **notes** and make an inventory of the most important points. What is the bigger picture like for this subject? Could you summarize it in one or two sentences?
	Look at your list of **keywords**. Are there terms that you need to add or that you could get rid of?
	How can you **organize** the material best in order to remember it? Could you group or class the terms, or is there an order of events over time? Could you find a powerful metaphor or story on which to hang the material?
	Try to make **connections** with material from other courses or from other disciplines.

As well as lectures, it is very likely that you will also take part in study groups or exercise sessions. These tend to be smaller groups, meaning there is more intensive contact with the lecturer and your fellow students. Many of the activities in study groups are designed to get you working actively with the material, by discussing the literature or holding presentations. This helps you to remember and clarify the material. It also means that you are responsible for the success of a meeting – more so than with lectures, for example. It is therefore important that before a study group meeting, you have read the relevant literature and have formulated questions and ideas on the material. You can also raise the issue of responsibility with others, if you notice that they have not prepared adequately, for example.

Self-study and planning

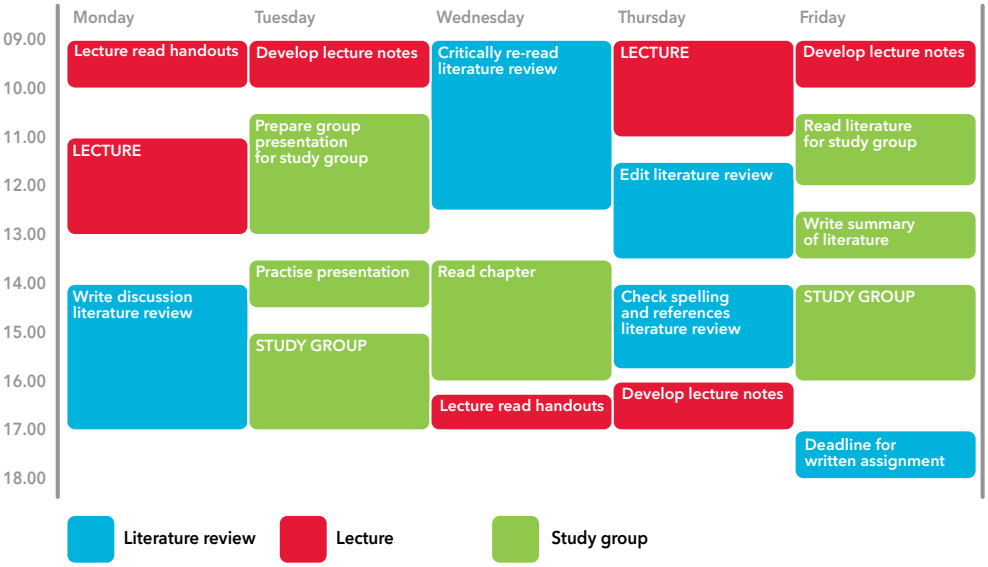
Besides the fixed course components, you'll also have lots of time and responsibility for designing and organizing your own study activities. This is known as self-study. If lectures and study sessions form the backbone of an academic programme, then self-study is the tissue that makes up the rest of the body. For this reason, self-study will probably cover the largest and most important part of your studies. In order to ensure that the time they get for self-study is planned in a well-organized and efficient way, many students find it helpful to draw up a study plan for the various courses that they're following.

Box 1.3
Example of a study plan

Steps	Example
Main goal	Complete the *Academic skills* course successfully.
Subdivide goal	■ Write a high-quality paper. ■ Give a good presentation. ■ Etc.
Identify tasks **- Paper**	■ Lectures: • Prepare for, attend and later make notes on study groups on writing skills. ■ Identify all sub-tasks or sub-assignments: • Deadline for formulating question; • Deadline for literature study; • Deadline for writing plan; • Deadline for first draft of paper; • Deadline for final version of paper. ■ Identify tasks for each interim assignment, for example: • X number of hours searching for literature on the Internet; • Spend X number of hours reading the articles you have found; • Spend X number of hours on making a rough draft of the paper; • Etc.
Week-by-week plan	Based on the study plan you've drafted, you can then plan, in as much detail as possible, what you want to do on a particular day (i.e. not just 'writing' or 'reading', but 'write first draft of the introduction' or 'read chapter 1 of *Academic skills*'). When making a plan, it is essential to allow space for unforeseen events. Make sure that you don't plan everything right up to the deadline, either; here, too, you should give yourself enough leeway.

In order to draw up a realistic plan, it is important to identify your strong and weak points (see Box 1.3). The more realistic your plan, the less risk there will be of you finding yourself having to tackle unmanageable chunks of work, and the more you will feel motivated by your plan.

Example of a weekly plan



Concentration

Might the grades for my most recent exams already be online? While you're reading a text for your literature review, a thought occurs to you and you can't get it out of your head. This problem is a familiar one for many students: whether it's the distraction of an expected grade or checking your phone for new messages, study is interrupted and results suffer as a consequence. Many people find it helpful to study in blocks of 25 to 45 minutes, taking short breaks in between. During these blocks, you shouldn't allow yourself to be distracted by outside stimuli or your own thoughts. This method is also known as the 'pomodoro' technique (named after its Italian inventor, who used a tomato-shaped kitchen timer to measure out 25-minute blocks). If you're having trouble concentrating, it's a great idea to try this technique. See 'Other useful sources' at the end of this chapter for a website with a more detailed explanation of the Pomodoro technique.

Box 1.4
Learning styles

Answering the following questions can help you to draw up a realistic study plan:

- For how long are you able to concentrate?
- At what time of day are you at your best? For example, are you a morning person or an evening person?
- Which material do you find tricky (reading texts in a foreign language, for example)?
- Where do you study best, at home or in the library?
- What generally takes you more time: reading academic texts or written assignments

In order to improve your concentration, it's also important to limit distractions as much as possible. Turn off your phone, for instance, ensure that your e-mail programme is off if you're working at your computer, and don't allow yourself to visit social media or news sites. It's also important to avoid being distracted by your phone or laptop during lectures and study groups. Research by Wei, Wang and Klausner (2012), for example, has shown that distraction caused by phones during lectures has a very negative effect on cognitive learning. Moreover, another research study by Mueller and Oppenheimer (2014) suggests that making notes on a laptop results in less effective learning than making notes with a pen and paper.

Examinations

As soon as you're sufficiently familiar with the key ideas, theories and concepts, it will be time to prepare yourself for an exam. Try to work out what is the essence of course: which are the most important parts and learning aims? The learning aims can often tell you more about the level of knowledge that's expected of you on a particular subject. In addition, you may find it helpful to put yourself in the lecturer's shoes: if you were him or her, how would you attempt to find out whether the students had learned enough? In this case, you may find the course handbook and old exam papers useful guides.

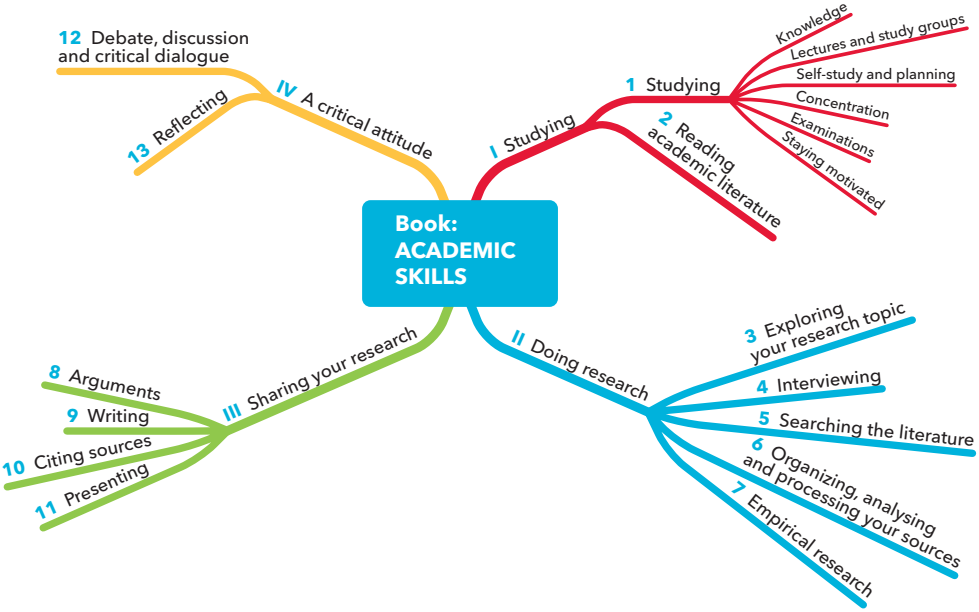
Some students find that they buckle under the fear of failure; although they prepare well, the stress of taking an exam means they don't do as well as they should. If you find that fear of failure is getting in the way of your studies, it's a good idea to discuss this with your academic counsellor.

Box 1.5
Potential tips for preparing for an exam

- **Take another look** at the course handbook: what are the learning aims of the course?
- **Look at** the lecture slides; they often tell you which themes the lecturer considers important.
- **Read** the material, make summaries and study them.
- **Study** your notes, summaries and the key concepts and figures.
- **Look through** old exams or mock exams and practise (preferably under timed conditions, like real exams).
- **Agree** to discuss the material with your fellow students.

Many students find making mind maps helpful when preparing for exams. Certainly when you're looking for links between concepts and subjects, or even fields, it can help to organize and summarize the information you're working on in a mind map. What's more, you can add related information to a mind map (from previous courses, for example). The figure below gives an example of a mind map, taking the structure of this book as the subject.

Example of a mind map



Staying motivated

You were admitted to university, so you're able to use your brain. From now on, though, your success at university will be determined to a very great extent by your motivation, regardless of how clever you are. Despite your privileged position, it is a challenge to remain continuously motivated for the whole of your degree. In the 1970s, the psychologists Edwald Deci and Richard Ryan did extensive research on what motivates people. They argued that three basic needs play a crucial role: 1) autonomy, 2) competence and 3) relatedness (Box 1.6). If one of these needs is not satisfied, your level of motivation may drop, and in the most extreme case this may result in a failure to complete your degree programme. You should therefore ask yourself the following three questions on a regular basis:

Box 1.6
Self-determination theory
(based on Deci & Ryan, 2008)

Question	Options if answer is 'No'	Basic need
Am I making my own choices (or am I actually doing this for my lecturer or my parents)?	Choose topics for papers that really interest you; choose a minor that fascinates you.	Autonomy
Isn't this too easy for me, or isn't it actually too difficult for me?	Seek extra help (such as coaching) or, on the contrary, extra challenges (such as honours modules).	Competency
Do I feel a connection with my fellow students and my degree programme?	Join a study association, organize a social activity.	Relatedness

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Other useful sources

- Google's StayFocusd is useful, free software for keeping distractions at bay. You'll find it in the Chrome Web Store or by doing a Google search on 'StayFocusd'.
- At Ted.com, you will find an interesting and practical introduction to the 'memory palace' memory technique by the author Joshua Foer (type his name into the site's search box).
- For more practical tips on studying successfully, go to uva.nl/en and type 'study skills' in the page's search box, then go to 'Studying successfully'. The sheets on 'How do you stay motivated?', 'How do you take an exam?' and 'How do you prevent procrastination' are particularly helpful.
- If you're having problems with studying, you can always make an appointment with your academic counsellor, for example, to talk about what's holding you back.
- The 'pomodoro' technique:
  - http://pomodorotechnique.com
- As well as the pomodoro technique, there are other ways of working more productively. This e-book contains yet more tips:
  - lifehacking.nl/wp-content/uploads/175Lifehackingtips.pdf
- A website with more information on study skills:
  - skills4study.com