

A guide to student success

# Scholarly & Research Capabilities



**Our knowledge belongs to all**

Scholarly & Research Capabilities: A guide to student success.

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# PREFACE

The impetus for this monograph stems from a deep commitment to educational equity and the transformative potential of libraries in supporting student success. As South Africa continues to navigate the legacies of an unequal education system, academic institutions must critically re-evaluate their approaches to learning support. This work responds to that need, exploring how libraries can play a central role in dismantling barriers and fostering a more inclusive, student-centred learning environment. The focus is on centring context to a changing learning environment.

In an era of rapid digital transformation and evolving pedagogical practices, information literacy has become a cornerstone of academic success. However, internationally recognised frameworks—such as SCONUL’s Seven Pillars, the ACRL Framework, and CAUL’s information literacy standards—are often built on assumptions of well-resourced learning environments, consistent educational preparation, and stable digital infrastructures. These conditions do not always align with the realities of South African higher education, where institutions must navigate deep structural inequalities in an unequal schooling system, varied levels of academic preparedness for higher education, and the ongoing challenges of digital inclusion.

At the University of Cape Town (UCT), calls for decolonised curricula and a shift towards African-centred knowledge production have reshaped academic discourse, demanding a more contextually relevant approach to research and learning. In response, UCT Libraries has critically re-examined traditional models of information literacy and developed an alternative framework—Scholarly and Research Capabilities (S&RC)—that moves beyond deficit-based perspectives. Unlike conventional approaches that often frame students as lacking essential skills, S&RC builds upon the knowledge, lived experiences, and intellectual strengths that students already bring into the academic space. This approach aligns with Sustainable Development Goal 4 (Quality Education) by ensuring that no student is left behind, regardless of their starting point.

This shift from Information Literacy to Scholarly and Research Capabilities represents more than a terminological change—it reflects a fundamental reconceptualisation of how students engage with knowledge. Traditional information literacy models often prioritise a linear, skills-based approach to acquiring, evaluating, and using information. While valuable, such models do not always account for the dynamic, iterative nature of scholarly inquiry or the complexities of knowledge production within diverse epistemic traditions. The S&RC framework, by contrast, is integrated into the research life cycle, ensuring that students receive structured, progressive support throughout their academic journey—from developing foundational research mindsets to critically engaging with and contributing to global and local knowledge systems.

The Research & Learning (R&L) team at UCT Libraries has undertaken a rigorous process of adapting global best practices while embedding principles of social justice, epistemic diversity, and decolonial scholarship. This monograph captures that effort, providing both a theoretical foundation and practical guidance for implementing the S&RC model within academic libraries. By embedding scholarly capabilities within the research continuum, this approach aligns with UCT's broader institutional commitments to accessibility, decolonisation, and excellence in higher education.

This work is the result of collective and collaborative engagement, shaped by insights from students, faculty, and library professionals who have contributed to its evolution. It is our hope that this monograph serves as a valuable resource for academic libraries, educators, and policymakers seeking to develop inclusive, locally relevant frameworks that empower students and advance the transformation of research and learning in the global South.

# ACKNOWLEDGEMENTS AND DEDICATION

UCT Libraries extends its sincere gratitude to all who contributed to the development of this book. Special appreciation goes to Jaimee Reid, who has since left the employ of the University.

This book is dedicated to the memory of our colleague, Alexander D'Angelo, who contributed significantly to the conceptualisation of scholarly and research capabilities. His contributions continue to inspire, and his legacy lives on through the ideas and efforts that shape this book.

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# CONTEXT

## **Scholarly and Research Capabilities: framing positive nurturing of students**

Decades of colonialism, followed by the apartheid system, necessitate shifting from deficit concepts to more positive ones. Under apartheid, information literacy, by default was framed through a deficit lens, portraying marginalised communities as lacking essential skills rather than recognising systemic barriers to access. This perspective ignored structural inequalities in education, language, and infrastructure that restricted access to knowledge. Instead of addressing these injustices, deficit-based narratives reinforced authoritarian interventions, positioning the state or dominant groups as the ‘providers’ of literacy. Such framing persists today in some digital and scholarly contexts, where information literacy is treated as an individual deficiency rather than a socio-political issue shaped by historical exclusion and power imbalances in knowledge production and dissemination. This deficit connotation needs to transition into recognising different capacities by engaging with information in diverse ways.

## **Reimagining information literacy in South Africa**

Education is at the centre of the 2030 Agenda for Sustainable Development, enshrined as Sustainable Development Goal 4 (SDG 4), which calls for inclusive, equitable, and quality education, fostering lifelong learning opportunities for all. Education is a fundamental human right, enabling individuals to engage meaningfully in society by developing critical thinking, creativity, and problem-solving skills. Yet, while international models of information literacy/fluency/capability provide useful frameworks, they often assume a baseline of student preparedness that does not align with the realities of South African schooling.

The South African higher education landscape presents unique challenges, shaped by historical inequalities, ongoing transformation efforts, and the demand for decolonial knowledge production. These complexities necessitate a reimagined

approach to information literacy that is both globally informed and locally responsive. The University of Cape Town (UCT) Libraries' Scholarly and Research Capabilities (S&RC) approach is designed to meet this need by addressing gaps in students' preparedness, promoting equity and inclusion, and supporting a decolonised curriculum that reflects African knowledge systems and priorities.

## **The South African Context: Bridging Historical Divides**

South Africa's schooling system continues to reflect deep-seated inequalities. As Ng'ambi et al. (2016) note, the legacy of apartheid education has resulted in structural disparities, leaving many students underprepared for university-level academic work. Jansen and Blank (2014) highlight the stark reality that, while approximately 20% of high school graduates qualify for university, nearly 50% of undergraduate students drop out due to inadequate academic preparation. Additionally, disparities in access to and familiarity with technology remain racialised, further exacerbating inequalities in higher education readiness (Nash, 2009). Beyond academic preparedness, students from historically disadvantaged backgrounds often experience cultural alienation within university spaces. Jansen (2017) identifies this as a significant factor behind the #RhodesMustFall and #FeesMustFall protests, which called for a transformed and decolonised higher education system. Decoloniality, though contested in definition, broadly signifies resistance to global north epistemologies and a re-evaluation of what knowledge is prioritised within academic curricula (Jansen, 2017).

These realities demand an approach to information literacy that moves beyond deficit-based models. Instead of imposing global north frameworks wholesale, UCT Libraries must engage in knowledge production that is contextually relevant and critically responsive to local needs. This includes integrating indigenous and contemporary African knowledge, fostering multilingual competencies, and rethinking the terminology of 'information literacy' itself to reflect a more empowering and inclusive vision—hence, the preferred term 'Scholarly and Research Capabilities'.

## **A transformative approach: Scholarly and Research Capabilities**

Recognising that learning is a lifelong process, the S&RC framework at UCT Libraries supports students at multiple stages of their academic journey. This modular, point-of-need approach, aligns with students' evolving scholarly requirements, from undergraduate orientation to advanced postgraduate research. The framework ensures that interventions are timely, practical, and directly linked to students' academic needs, fostering engagement and retention, ultimately toward student success.

This approach is informed by international best practices, including the SCOUNL Seven Pillars of Information Literacy (Bent, Stubbings & SCOUNL, 2011) and the ACRL Framework (ACRL, 2015). The SCOUNL model envisions skill development as a progressive process, while the ACRL Framework introduces critical perspectives on information, authority, and scholarship. In the Australian context, CAUL frameworks have similarly adapted information literacy models to emphasise employability and digital skills development. While these models provide valuable insights, UCT Libraries has developed a locally relevant matrix that aligns with global best practices while addressing South Africa's specific higher education challenges.

## **Key focus areas: a contextualised information literacy framework**

In alignment with SDG 4 and the principles of equitable access, UCT's approach to information literacy prioritises:

- Bridging the knowledge divide: addressing disparities in educational preparedness through targeted, skills-based interventions.
- Equitable access: expanding learning opportunities through multiple modalities, including digital and multilingual support.
- Decolonisation and indigenous knowledge integration: ensuring that knowledge production and research at UCT reflect African priorities and methodologies.
- Empowerment and critical engagement: encouraging students to critically evaluate and contribute to the production of knowledge in ways that are meaningful to their own social and academic contexts.

- Digital and workplace readiness: preparing students to navigate an increasingly digital and globalised information landscape.

The shift from ‘Information Literacy’ to ‘Scholarly and Research Capabilities’ signals a commitment to empowering students, rather than merely filling perceived gaps in their knowledge. This shift acknowledges that students bring valuable lived experiences and cultural knowledge into the academic space, which should be validated and expanded rather than erased.

## **Rethinking information literacy for a global south context**

Higher education in South Africa exists at the intersection of global academic traditions and local realities. Information literacy, as traditionally conceived in global north frameworks, must be critically adapted to ensure relevance within this context. UCT Libraries’ Scholarly and Research Capabilities represents a transformative approach—one that is inclusive, responsive, and aligned with the university’s broader commitment to social justice and decolonisation.

By embedding scholarly capabilities across the student lifecycle, integrating indigenous knowledge, and fostering multilingual competencies, UCT Libraries aims to equip students with the skills necessary to succeed in academia and beyond. In doing so, S&RC supports a more just and equitable higher education system—one that is both globally engaged and firmly rooted in the South African experience.

## **Tenets framing the alternative**

There are four core tenets that frame the understanding, conceptualisation, and rollout of UCT’s alternative to information literacy. The first is UCT’s context as a research-intensive institution, the second is the mapping of S&RC against the SDGs, the third is the examination of social justice and its role in education and, lastly, the mapping of S&RC in the research life cycle.

## 1. S&RC at a research-intensive institution

UCT, as a research-intensive university, requires students to be exposed to a robust scholarly and research capabilities programme. Research-intensive universities are distinguished by their commitment to cutting-edge research, strong academic support structures, and the integration of research into teaching and learning. This shift necessitates dynamic and flexible library and information services that evolve to meet the needs of researchers, faculty, and students alike.

### *Enhancing research and teaching integration*

At a research-intensive university, research drives teaching. Faculty engagement in continuous research brings the latest developments into the classroom, enriching the learning experience for students. The role of the library in this integration is crucial, providing access to high-quality academic resources, fostering information literacy, and supporting a culture of critical thinking and collaborative learning.

Scholarly and research capabilities are the backbone of a research-intensive university. They drive innovation, enhance teaching and learning, and position the institution as a global leader in knowledge creation. Libraries and academic support services play a transformative role in this ecosystem, ensuring that research and scholarship remain dynamic, accessible, and impactful. Through continuous adaptation and investment, research-intensive universities will continue to shape the future of education, research, and societal progress.

## 2) Scholarly and Research Capabilities and Sustainable Development Goal Four

Education is at the core of the 2030 Agenda for Sustainable Development. It is recognised as a stand-alone goal—Sustainable Development Goal 4 (SDG 4)—and is also integrated into other SDGs related to health, economic growth and employment, sustainable consumption and production, and climate change.

SDG 4 emphasises that education liberates the intellect, unlocks imagination, and fosters self-respect. It serves as a foundation for prosperity, providing individuals with the knowledge and skills necessary to contribute meaningfully to a progressive,

healthy society. Learning is a lifelong process that benefits all individuals and should be accessible to everyone.

### *SDG 4: Quality Education*

The United Nations declaration on SDG 4 calls for inclusive and equitable quality education and promotes lifelong learning opportunities for all. The overarching goal is: *“To ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.”*

The emphasis under this goal is universal coverage of quality education for all in order that they can contribute to building a just, tolerant and inclusive world. A vision of an inclusive quality education will focus on the idea of education for all, particularly those groups considered vulnerable.

### *Education as a Fundamental Human Right*

Education is both a fundamental human right and an enabling right, meaning it is essential for exercising other rights and opportunities. A commitment to equal access must underpin all efforts to achieve educational equity, ensuring that no one is left behind. Education should extend beyond basic literacy and numeracy, equipping individuals with:

- Critical thinking and problem-solving skills
- Creativity and innovation
- Collaborative abilities
- Curiosity, courage, and resilience

### *Key Focus Areas of SDG 4*

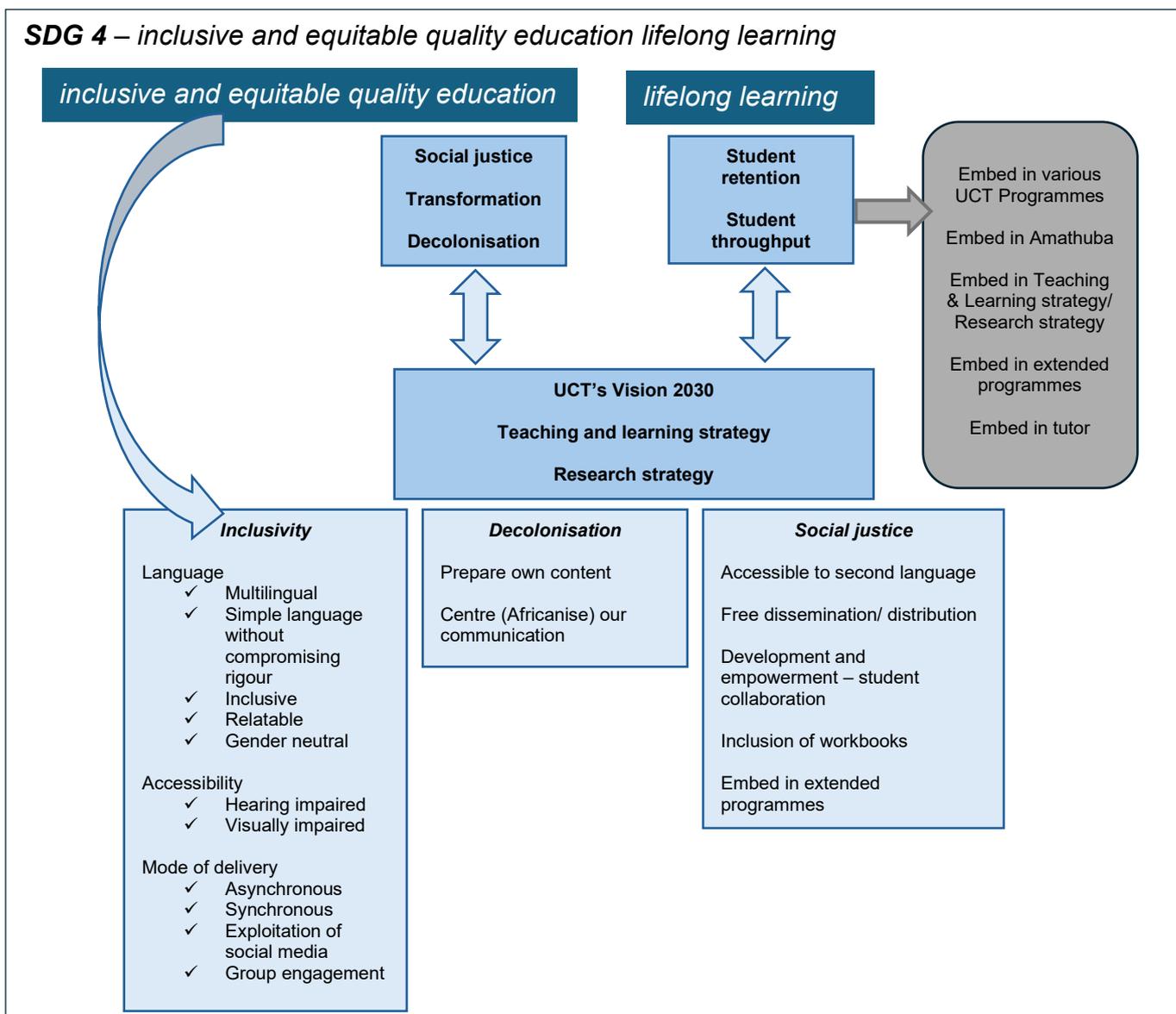
The SDG 4 framework outlines seven outcome targets, with Target 4.5 specifically addressing the elimination of discrimination in education. In essence, SDG 4 calls for:

- Ensuring lifelong learning opportunities for all
- Fostering equity, inclusion, and equality in education
- Promoting effective learning and the acquisition of relevant knowledge, skills, and competencies
- Ensuring the relevance of learning to contemporary global and local challenges

## UCT Libraries' Focus Areas (see Graphic 1)

In alignment with SDG 4, the UCT approach focuses on:

- Reducing barriers: addressing obstacles to skills development and expanding lifelong learning opportunities.
- Equitable access: increasing and diversifying learning opportunities through multiple educational and training modalities.
- Inclusion and equity: ensuring that all individuals, especially those in vulnerable circumstances, have access to quality education.
- Bridging the knowledge divide: addressing disparities in educational preparedness among students.
- Empowerment: equipping students with the critical thinking skills necessary for success in a rapidly evolving global workforce.



**Graphic 1: Application of SDG 4 at UCT Libraries**

## **Reimagining a point of need service**

The principles, strategies, and actions guiding S&RC reflect a contemporary understanding of literacy as a continuum of proficiency levels rather than a binary distinction between 'literate' and 'illiterate'.

A review of the literature shows that there is very little 'return on investment' for the once-off or 'one-shot' sessions at the beginning of the year. The students are overwhelmed at the start of the new academic year and, as importantly, cannot establish a significant relationship between the session and its impact on their academic journey.

The S&RC respond to the binary interpretation and the efficacy of the 'one-shot' session by offering a flexible, point-of-need service which allows students to enter and exit the learning process as required. By mapping S&RC against the research lifecycle, orientation, instruction, and training become more meaningful, as students can directly connect interventions to their immediate academic needs.

## **The link between research and education**

There is a natural synergy between teaching, learning, and research. The United Nations guidelines on sustainable development emphasise the critical role of education, research, and innovation in achieving SDGs. Universities, therefore, have a key responsibility in driving this agenda.

There is a natural synergy between teaching, learning, and research. The United Nations guidelines on sustainable development emphasise the critical role of education, research, and innovation in achieving the Sustainable Development Goals (SDGs). Quality education (SDG 4) is foundational, as it fosters the development of knowledge, skills, values, and attitudes necessary for promoting sustainable development. Research and innovation are equally essential, providing evidence-based solutions and technological advancements to address complex global challenges such as poverty, inequality, climate change, and health crises.

Universities, therefore, have a key responsibility in driving this agenda. As hubs of knowledge creation and dissemination, they play a crucial role in equipping future generations with the tools to pursue sustainable solutions. Moreover, through interdisciplinary research and partnerships with government, industry, and civil society, universities can directly contribute to developing policies, technologies, and frameworks that promote sustainable development. By integrating SDG-oriented teaching, research, and community engagement into their core missions, universities can enhance their societal impact and actively participate in building a more equitable and sustainable world.

The library's role is to partner with the university in integrating research and education into a unified process, ensuring that students benefit from a high-quality educational experience that is both inclusive and research informed.

## **1) Social justice and its role in education**

Caravelis and Robinson (2016) define social justice as the promotion of a just society by challenging injustice. They argue that it requires a fair allocation of resources so that individuals are not disadvantaged due to their social or economic status.

John Rawls (2003) expands on this, stating that social justice ensures equal access to liberties, rights, and opportunities, particularly for the most disadvantaged members of society. Similarly, Miller (2003) emphasises that education is one of the most critical social resources, and its distribution must be fair and just.

From an action-oriented perspective, social justice requires removing barriers that perpetuate vulnerability and deprivation. Scholarly and Research Capabilities is a deliberate effort to dismantle these barriers, ensuring a more inclusive learning environment at UCT.

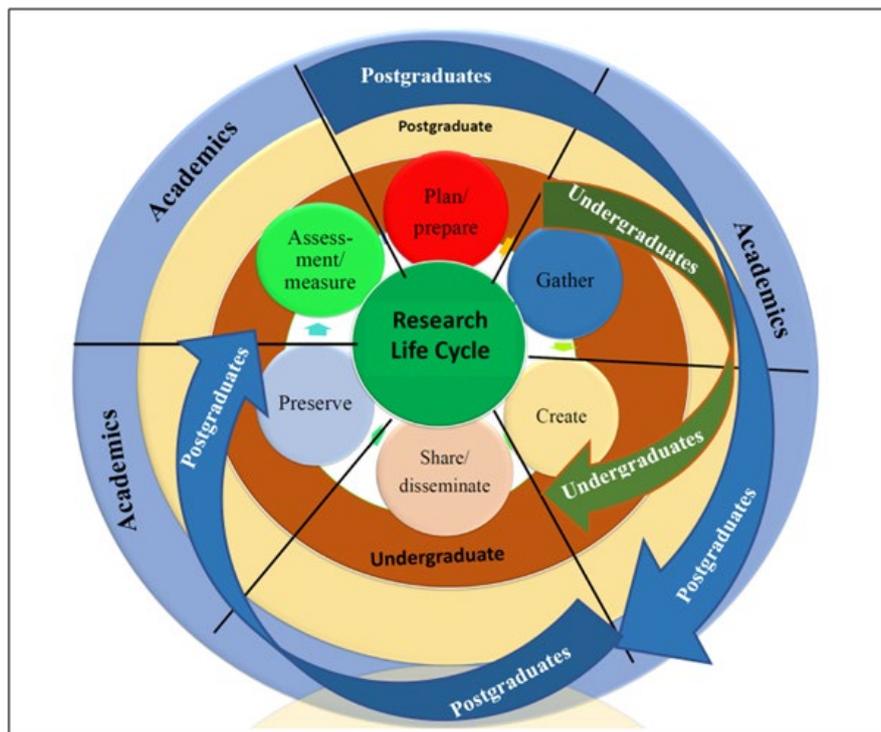
## Transformation and the S&RC service

Achieving true transformation in education requires deliberate and strategic action. The S&RC service is designed to actively foster inclusivity, ensuring that all students—regardless of background—have the support needed to thrive academically.

Libraries must rethink their practices and perspectives to better align with social justice principles and create learning environments that are truly equitable, inclusive, and empowering.

## 2) Mapping Scholarly and Research Capabilities in the research life cycle

The research life cycle offers a framework for understanding how scholars progress through their research journey. When integrating undergraduate students and new postgraduate students into this cycle, it is essential to tailor support, tools, and training to each stage of the research process. Below is a narrative mapping of scholarly and research capabilities throughout the research life cycle for these two groups of students.



Graphic 2 Research life cycle

## **Plan/prepare phase**

For undergraduate students, the journey begins with an introduction to academic inquiry. They are guided through understanding what constitutes a research question, the importance of original thinking, and how to identify credible sources. Orientation programs focus on library resources, search tools, and databases help them begin their exploration of research topics.

For postgraduate students, the focus shifts to a deeper understanding of research gaps. These students are expected to have a more refined grasp of academic literature and methodologies, allowing them to select topics based on existing research and the latest trends in their field. They are encouraged to critically engage with literature, possibly through systematic reviews, to identify areas where their own research can contribute new insights.

The plan/prepare phase is more relevant to postgraduate students.

## **Gather phase (literature review and background research)**

The Gather phase of the research life cycle corresponds to the literature review and background research, where students engage with existing scholarship to frame their research questions, identify knowledge gaps, and establish theoretical foundations.

For undergraduate students, this phase introduces them to the fundamentals of literature reviews. They are capacitated to search for and evaluate sources using academic databases, library catalogues, and search engines. Emphasis is placed on distinguishing between credible and non-credible sources, understanding the principles underpinning peer-reviewed literature, and recognising biases in information. Basic skills in summarising, paraphrasing, and synthesising information are developed to support students engage with academic writing standards.

For postgraduate students, the literature review process becomes more specialised and critical. They are trained in advanced search strategies, including the use of Boolean operators, discipline-specific databases and such. Additionally, postgraduate students engage with systematic reviews, meta-analyses, and theoretical frameworks,

learning to critically assess and synthesise existing research. This stage ensures that they not only build on previous studies but also contribute meaningfully to scholarly discourse.

### **Create phase (writing and research output development)**

The Create phase of the research life cycle corresponds to the write-up stage, where students synthesise their research findings into structured academic outputs. This phase involves drafting, revising, and refining research papers, dissertations, and theses.

For undergraduate students, the focus is on developing structured academic writing skills. Students acquire skills on how to construct clear arguments, integrate evidence from sources, and follow disciplinary writing conventions, which are learned from lectures and the Writing Centre. Students are introduced to citation practices and referencing tools ensuring proper academic integrity by the library. Basic exposure to peer review and feedback incorporation helps them improve their drafts.

For postgraduate students, writing becomes a more iterative and research-intensive process. A strong emphasis is placed on reference management, equipping students with tools like Zotero, Mendeley, or EndNote to organise and track sources effectively. They also engage with academic publishing standards, learning how to format and structure research papers for journals, conference proceedings, or institutional repositories.

### **Share/Disseminate phase (scholarly communication and impact)**

The Share/Disseminate phase ensures research reaches academic, professional, and public in general. At a research-intensive institution, scholars must navigate academic publishing and open science. This includes selecting journals and leveraging open access models. Scholarly identity is strengthened via ORCID, citation metrics, and social media. Decolonising dissemination is crucial—promoting Diamond Open Access, multilingual publishing, and indigenous knowledge-sharing. Scholarly and Research Capabilities (S&RC) equip researchers with the skills to communicate

findings effectively, ensuring knowledge is accessible, inclusive, and impactful across diverse communities.

Tables 1 and 2 unpack the Gather and Create phase of the research life cycle. There are three categories (reflected as objectives), namely, awareness (orientation), skills capacity development, and education. This table is unpacked in the subsequent chapters.

Pillars/ SCONUL/ACRL /CAUL	Vehicle	Process	Objective	Intervention	Learning Outcome	RLC
SCONUL/ACRL /CAUL	Demonstrate	Orientation	Awareness based	University Orientation	Familiarity with support resources	Gather
				Library Orientation		Gather
SCONUL/ACRL /CAUL	Instruction	Train	Skills based process	Library instruction	Capacitated to succeed in getting started	Gather
				Subject instruction		Gather
				Computer instruction		
SCONUL/ACRL /CAUL	Information literacy	Teach – pedagogy influence	Education	Plagiarism and ethics in academic writing	Lifelong learning	Create
				Reference management		Create
				Research Data Management (RDM)		Plan
				Literature reviews done systematically		Gather
				Academic writing and ethics		Create
				Information gathering and evaluation		Gather
				Research Landscape Analysis (RLA)		Plan

Pillars/ SCONUL/ACRL /CAUL	Vehicle	Process	Objective	Intervention	Learning Outcome	RLC
ACRL	Information fluency & wisdom*		1+2+3+ practice implement ation	Publishing	Knowledge production	Share
				Assessment		Assess ment/ Measure
				Preservation		Preserve

**Table 1: The ladder approach to S&RC**

Stage	Activity	Intervention
<b>Plan/Prepare</b>	Research Landscape Analysis, Ethics and Compliance, Data Management Plan (DMP)	Identification of topic, How to do a DMP
<b>Gather</b>	Literature search Resources, Strategies to find relevant information sources Discover Gather Create Share Measure	Library orientation and instruction, discovery tools (Primo, Databases and Guides), Training or Workshops, Smart searching (search strings, Boolean operators, phrase searching etc.)
<b>Create</b>	Citation Management, plagiarism, Writing up	Reference managers, Academic writing, Plagiarism
<b>Share</b>	Publishing and Presenting, Writing Workshops, Where to Publish, Author Rights, Digital Repository, Dissemination	Open access vs closed access, Identification of journal, APC, Predatory publishing
<b>Preserve</b>	Preserving, Data Curation	Data Repository
<b>Assessment/ Measure</b>	Prestige, Impact, and Discovery, Citation Metrics, Alternative Metrics	Measuring – Research, Tracking your academic footprint, Measuring – Publication/ author Impact

**Table 2: Summary of research life cycle with interventions**

## Purpose and scope of the monograph

This book is a guide for both students and lecturers, helping them learn, teach, and apply research skills. It provides a foundation for students and supports lecturers in mentoring and teaching research effectively.

### For students

- **Step-by-step research help**

The book unpacks the research process in a simple, structured way, so students know what to expect at each stage. The intention is to provide students guidance in how the stages impact on their academic trajectory.

- **Skill development**

It covers both basic and advanced research methods, helping students improve their abilities over time. Beginners learn skills like finding sources and citing them, while advanced students get guidance on elements that contribute to good academic writing.

- **Encouraging critical thinking**

The book encourages students to engage critically with the resources through asking probing research questions, understanding existing studies, and thinking independently.

### For Lecturers

- **Teaching support**

The book serves as a useful teaching resource, providing structured content and exercises for support material that is linked to research elements of their courses.

- **Guidance for mentoring**

It helps lecturers guide students through the different stages of research projects as it links to the research life cycle, especially at the postgraduate level.

- **Encouraging research-based teaching**

Lecturers can use the book to include research activities in their courses, helping students develop strong research skills.

## **Going forward: Artificial Intelligence in Scholarly and Research Capabilities**

Artificial Intelligence (AI) is reshaping the global research and higher education landscape. However, academic libraries are still actively exploring how best to position themselves along the AI continuum. While AI tools hold significant potential to enhance research, learning, and knowledge creation, there remains ongoing uncertainty about their pedagogical, ethical, and operational implications. As a result, libraries are approaching AI with cautious optimism, recognising both its transformative possibilities and its risks.

Currently, the most immediate and clearly defined role for libraries lies in supporting students and lecturers to navigate AI in relation to referencing, attribution, and plagiarism. Generative AI tools introduce new complexities in academic integrity: students may use AI to draft text, generate ideas, summarise readings, or create citations, often without understanding when such use is permissible, how to reference AI-generated content, or what constitutes misconduct. This places academic libraries at a crossroads. Traditional information literacy (IL) frameworks, long centred on searching, evaluating, and citing information, are no longer sufficient to engage meaningfully with AI-mediated knowledge production. There is therefore a need for libraries to reframe their work through the lens of S&RC, a concept that foregrounds the full continuum of scholarly practice: inquiry, knowledge creation, authorship, dissemination, and stewardship.

Within this reimagined S&RC framework, the library's role extends beyond helping students 'use AI correctly' for assignments. S&RC is oriented towards enabling students to critically interrogate AI-generated outputs, recognise bias and fabrication, and reflect on questions of authorship, accountability, and intellectual ownership. This positions libraries uniquely to address the scholarly implications of AI across the research lifecycle.

However, engagement with the research lifecycle should not fuel aspirations for librarians to adjudicate on research ethics. While librarians play a critical role in fostering ethical awareness, transparency, and responsible scholarly practice, the formal adjudication of research ethics remains the remit of academics and institutional ethics structures. Ethical judgement, particularly in relation to disciplinary norms, methodological appropriateness, and assessment design, requires subject-specific expertise and pedagogical authority, which reside with lecturers and researchers.

Recognising this distinction is crucial. Librarians are not arbiters of ethical acceptability but rather enablers of ethical scholarly engagement. Their contribution lies in equipping students with the capabilities to ask critical questions about AI use: when does AI support scholarship, and when does it undermine it? How does AI reshape authorship and accountability? What forms of knowledge are privileged or excluded by algorithmic systems? How do issues of power, bias, and access manifest in AI-mediated research environments?

It is for this reason that this book deliberately aims to include a chapter on AI and research ethics authored by academics. The inclusion of academic voices ensures that ethical deliberation is grounded in disciplinary practice, assessment realities, and pedagogical intent, while remaining aligned with the broader aims of the volume. This approach reinforces the complementary roles of librarians and academics: academics articulate and adjudicate ethical standards within their disciplines, while libraries embed these standards within a broader framework of S&RC.

## **Conclusion**

The concept of information literacy (IL) has traditionally emphasised the ability to locate, evaluate, and use information effectively. However, this approach often follows a deficit-based model—assuming students lack necessary skills and need to be ‘filled’ with knowledge, typically rooted in global north frameworks.

Shifting from information literacy to Scholarly and Research Capabilities (S&RC) reframes the discourse to emphasise empowerment, inclusivity, and contextual relevance. Rather than viewing students as lacking skills, S&RC acknowledges their

existing knowledge, lived experiences, and cultural contexts. It promotes active engagement with knowledge production and dissemination, particularly within marginalised and historically excluded communities.

This approach to S&RC recognises the importance of decoloniality and social justice, acknowledging the impact of historical and structural inequalities in shaping access to knowledge. It prioritises the integration of indigenous and African knowledge systems while moving away from global north models to locally relevant frameworks. Equitable access and multilingualism are also central to this perspective, embracing diverse linguistic and cultural contexts to enhance accessibility and providing learning opportunities through various modalities, including digital resources and language-specific support.

The emphasis on empowerment and critical engagement encourages students to critically evaluate and contribute to knowledge production. This S&RC framework requires embedding these capabilities throughout the research life cycle, including planning, gathering, creating, and disseminating knowledge. By providing point-of-need support tailored to the specific needs of undergraduates and postgraduates, this approach offers a more holistic and relevant learning experience.

Moreover, aligning S&RC with Sustainable Development Goal 4 (Quality Education) ensures that education is inclusive, equitable, and lifelong, supporting students from diverse backgrounds to thrive academically. Moving away from ineffective, isolated training sessions to continuous, iterative engagement throughout the student's academic journey is essential for true empowerment.

The shift to Scholarly and Research Capabilities is necessary because the traditional deficit model fails to address systemic barriers and assumes neutrality in knowledge systems. S&RC actively addresses social justice issues by dismantling barriers to access and promoting agency in knowledge creation, recognising that students bring valuable skills and experiences that enrich the academic environment.

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# MODULE 1

## GUIDE TO TACKLING YOUR FIRST ASSIGNMENT

### Introduction

The library is your knowledge partner and would like the opportunity to journey with you to achieve academic success. In subscribing to the belief that student academic success starts in the library, we commit to providing conducive spaces and the most appropriate research support for an enriching learning experience.

### Purpose of the guide

This guide introduces you to the fundamentals for a hassle-free experience with your first assignment. The intention is to give you a sound grounding for more intensive research assignments that will come later. Irrespective of the complexity of your research assignments, the library provides the most appropriate information resources for that enriched life-long learning experience.

### Objective of the guide

We would like to provide you with uncomplicated guidelines as you tackle your introductory research assignments. This guide focuses on interpreting a reading list, developing search strategies using appropriate keywords, searching platforms to find relevant and authentic information resources, and to accurately cite them to eliminate plagiarism.

## Let's go

It can be quite overwhelming to start any research assignment, but if it's broken down into smaller steps, it becomes more manageable and less daunting. This guide is meant to assist you in tackling your first assignment. It also provides the basics and sets the foundation for more complex assignments that require a deeper interrogation of library resources, including consultations with expert library staff. If this guide does not fulfil all your information needs for the first assignment, please do not hesitate to explore the wide range of library guides ([accessible via the Library's website](#)) or [contact](#) the library staff.

As you begin to think about your assignment, consider how you find and evaluate your information. This guide walks you through the basics of what is called the research process, and how to find library resources to support your assignment.

## Where do I start?

Your lecturer will give you an assignment topic, possibly after covering the basics of the topic. The lecturer may provide a reading list with the expectation that you can start with this list and, if possible/necessary, add more readings when preparing for the assignment. The items on your reading list are reliable sources of information, which are relevant to your topic. In an alternate scenario, the lecturer may present a research topic without a reading list and expect you to find the relevant resources to answer the assignment.

Let's start with the first scenario where a reading list is provided and then follow that with the second scenario where you must determine or identify your keywords and use these keywords to find the relevant resources.

## Starting point: the reading list (scenario 1)

The first thing that must be done is to [interpret a reading list](#) which will have, amongst others, references to books and journal articles. You must be able to differentiate between a book and a journal article before you start with the assignment.

Here is what a typical citation or reference for a book looks like in the UCT author-date referencing style:

Raju, R., Adam, A., Johnson, G., Miller, C. and Pietersen, J. 2015. *The quest for a deeper meaning of research support*. Cape Town: University of Cape Town Libraries. DOI: 10.15641/0-7992-2522-8.

Author/s of the book. Date of publication. *Title of the book*. Place of publication: Publisher. Digital object identifier (DOI).

**A typical article would read as follows:**

Raju, R., Claassen, J., Adam, A., D'Angelo, A., Keraan, S., Mostert, N. and Vonk, S. 2018. Restructuring for relevance: a paradigm shift for academic libraries. *Library Management*. 39 (6/7): 1-12. DOI: 10.1108/LM-06-2017-0062.

Author/s of the article. Date of publication. Title of the article. *Title of the journal*. Volume (issue number): page numbers. DOI.

For more examples, you can consult the [UCT Author-date Reference Guide: based on the Harvard Referencing style](#).

For other referencing styles, please see this link:

<http://www.lib.uct.ac.za/lib/research/referencing>

## Exploring your reading list

Now that you can differentiate between the different information resource types (e.g., books and journal articles), you can start your search. It is important to note that there are a substantial number of those references which will be in electronic format (e.g., e-books and journal articles). However, there will be references which will be in hardcopy (paper) format, which means you will have to go to the library to borrow or photocopy/scan them. Please make sure that you follow copyright legislation (rules) when you are making photocopies/scans.

## Locating information resources

You now have your reading list and you know how to read a reference. The next step is to access the information resources on the reading list. [Google](#) is a quick and familiar way of finding information and can be a useful way to begin researching around a topic. However, you are strongly encouraged to use the library databases as they provide authentic research information. The University makes substantial investments to ensure that you have access to authentic information resources to assist you with your assignments. Your lecturers will make attempts to ensure that the references in the reading list are accessible in the Library.

## What about Google Scholar?

[Google Scholar](#) works in a similar way to other search engines but searches for scholarly literature. Be that as it may, you will still need to carefully evaluate the information to ensure that it is relevant to your assignment.

## Using the Library platform for your resources

The Library has a platform (online catalogue) called Primo, which you can browse to find relevant information resources. In Primo you can find all books and journals (in both formats, electronic and physical copies) held at UCT Libraries. For physical copies of material, Primo will give you the call or shelf number (Dewey number, e.g., 658.402 THE). This call number can be understood as the 'street address' of the book.

If you find any e-books when you are searching for information, you can click on the hyperlink to access the full text.

Many students browse the shelves initially to look for books on a topic. Books are shelved in number sequence using the call number on the spine of the books. Books with similar content or subject matter are grouped together, which facilitates browsing. If you need help locating a book, please ask any library staff member.

## Read critically and extract information relevant to your topic

The first step is to thoroughly evaluate your information resources. Your success with academic writing depends upon how well you understand what you are doing as you write, and then how you approach the assignment task. Hence, you need to read the consulted information resources critically and extract the most relevant information to support your assignment. It is important to understand that writing up the assignment requires more than the ability to construct correct sentences or compose neatly organised paragraphs. Successful completion of an assignment requires that you utilise your research skills and your ability to read complex texts and respond critically to new information.

## Plagiarism

A good understanding of [plagiarism](#) is extremely important when writing up your assignment.

### What is plagiarism?

Plagiarism is the taking of another person's ideas, writings or inventions and using them as your own. This does not conform to good academic work. Re-wording/paraphrasing another person's work without citing the source is also considered plagiarism. One way to alleviate plagiarism is to reference all sources used.

### What is referencing or citing?

[Referencing](#) is the process of acknowledging the contribution of other writers and researchers in an academic piece of work. Any research assignment that draws on the ideas, words or research of other writers must be cited/acknowledged. There are two tiers of citing: firstly, in-text referencing and, secondly, the creation of a list of references used.

***In-text citations*** – when you refer to other people’s work in the text of your assignment. These citations appear in the main body of your assignment. It is very important to acknowledge the authors of the book/article that you used in your assignment, whether you have quoted them directly or just referred to their research/ideas. In-text citations are when you refer to other people’s work in the text of your assignment. These citations appear in the main body of your assignment.

***Generating a reference list*** – You must ensure that you keep a record of all your sources you used or referred to in your assignment. At the end of the assignment, you will compile your reference list.

There are many citation styles – check what is the preferred style of your department. UCT generally uses the [UCT Author-date Reference Guide: based on the Harvard Referencing style](#).

Knowing all of this, you are now ready to submit your assignment.

## **Developing and applying keywords (scenario 2)**

In scenario 2 (if you have not been given a reading list), you will need to develop a set of keywords and apply these keywords to a search process. The first step in this process is to understand your assignment topic. You need to have a good idea as to exactly what the topic requires. A good starting point in understanding the topic is accessing disciplinary reference material.

The Library makes collections of [subject encyclopaedias and handbooks](#) that serve as a great source of background information on a variety of topics to start your research. This background reading sets a good foundation for the creation or identification of keywords.

### **What are keywords?**

Keywords are words in your assignment topic that provide guidance on how to select or identify key concepts you will be looking at. You need to choose keywords and

phrases that best describe that topic. Please remember to include synonyms, related terms and alternative spellings in your list.

Once you have developed your keyword list, you can use these keywords to find the necessary information resources. The starting point in the collection of the information resources is the library platform (Primo) and (if necessary) Google Scholar.

The steps hereafter are the same as Scenario 1.

## **Study spaces**

The library strives to provide a safe (non-judgmental) and conducive study space. The library's extended hours provide students with plenty of time to complete their assignments.

## **Conclusion**

In conclusion, starting your first assignment journey can feel daunting, but with this guide you will be equipped with the foundational tools to navigate the process effectively. By understanding the importance of interpreting your reading lists, developing search strategies, critically evaluating sources, and adhering to referencing and citation guidelines, you are laying the groundwork for academic success. Remember, the library is your knowledge partner throughout this journey, offering not only resources but also support from knowledgeable staff. With these skills and support, you will be well-prepared to tackle any academic challenge that comes your way.

## **Additional resources**

- [Introduction to the virtual library service video](#)
- [UCT Author-date Reference Guide: based on the Harvard Referencing style](#)

# MODULE 2

## INFORMATION GATHERING AND EVALUATION

### Introduction

Information gathering activities play an important role in projects and assignments. Projects often start out with a problem statement, which you will use to search for necessary information to develop an effective argument. There are many sources of information that need to be interrogated in developing an effective argument.

In responding to a problem statement or research question, you are expected to navigate, make sense of and collect specific information from relevant sources. Hence, it is important for you to have the necessary skills of information gathering and the sub-skill of accessing accurate and reliable information.

### What is information gathering?

Information gathering is the process of collecting information in response to a research question/problem statement. Information can be gathered in different ways using several methods, tools and techniques.

### What is the purpose of information gathering and evaluation?

The purpose of information gathering and evaluation is to determine the availability of needed information and to make calculated decisions based on its qualities (currency, context, authorship, audience, format, source, credibility, etc).

## Why is information gathering important?

- It will help you avoid reinventing the wheel.
- It will help you gain a deeper understanding of the issue so that you can address the research question/problem statement.

## What are the objectives of information gathering and evaluation?

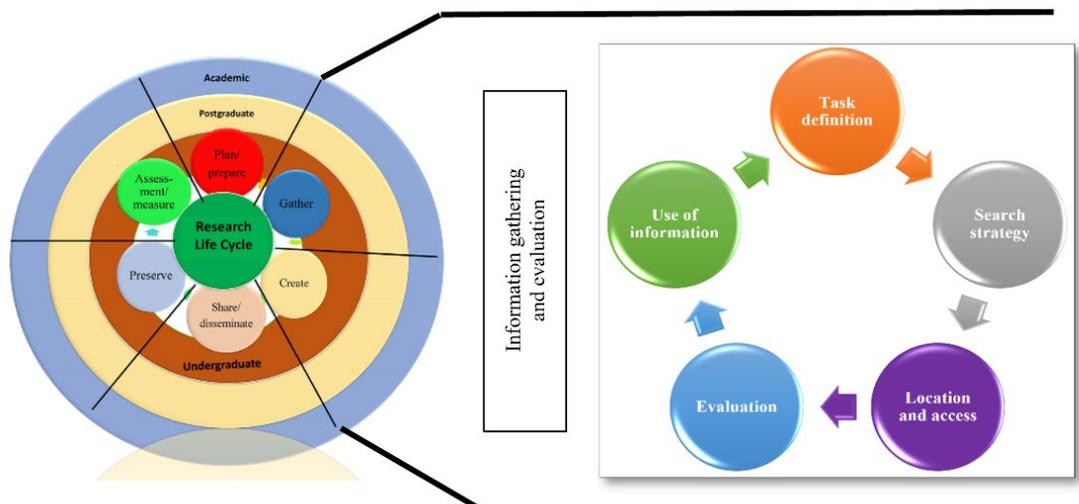
- Create a culture of thinking critically about information sources
  - ✓ think critically about the reliability, validity, accuracy, authority and timelines.
  - ✓ think critically of points of view or bias of information source.
- Helps identify relevant research on which to build one's own research and findings.

## Target activities

- Understand the value and differences of potential resources in a variety of formats (e.g. multimedia, database, website, data set, audio/ visual, book).
- Understand the purpose and audience of potential resources (e.g. popular vs. scholarly, current vs. historical).
- Differentiate between primary and secondary sources; recognise how their use and importance vary with each discipline.
- Determine probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions.
- Understand that different sources need different search strategies.

## Learning outcomes

- You will be empowered to seek and evaluate information resources to respond to a research question.
- You will develop foundational understanding of information gathering and will improve your research competencies.



**Figure 2.1: Information gathering within the Research Life Cycle**

## Steps in information gathering and evaluation

The information gathering and evaluation process can be deconstructed into five steps: (1) task definition, (2) search strategy, (3) location and access (searching), (4) evaluation and (5) use of information (including fair use).

One of the primary purposes of information gathering is to locate the most relevant documents in a collection to respond to the research question. You know a search is successful when you receive results that are relevant and relate to your information need.



**Figure 2.2: Information gathering cycle**

You need to keep in mind that the order of this cycle is not set in stone, and you may need to go back to refine or redo previous steps, but the further along in the cycle you get, the harder it is to go back and do earlier steps. This is why it is important that you do steps one and two as well as possible before moving on.

## Step 1: Task definition

The first step to completing a task is to understand what you are going to do. Therefore, define the task by breaking it down into smaller sections and describing it in your own words.

For example, if your assignment requires you to prepare a presentation, you will need to search for more than just text and look for images, graphics or videos to include in your presentation.

A good process to follow in understanding your task is to do the following:

1. Read the instructions. Does the task require you to create an essay, report or presentation? Use this to identify the information needed to complete it.
2. Rewrite the task question in your own words. This will help you understand what exactly you need to do and may help you save time from looking for the wrong information.
3. Gather basic information about your topic by doing a brief Google search.



**Note:** think of Google like a starting point to get a general idea about your assignment. But when you really want the good stuff, like trusted articles, you should use Google Scholar or resources from your libraries catalogue

## Step 2: Search strategy

Once you have defined your task, you can move onto the second step which is to find background information. You can do this by having a look at general and/or specialised dictionaries and encyclopaedias to better understand your topic. To do this we would recommend using the library's resources (including the electronic ones).



### Tips:

- For more information on this refer to the literature review module.

What you can use - search engines, databases, online libraries, e-books and similar information resources. The second phase of this step is to identify search terms. While gathering information, creating keywords is an ongoing process and after producing new keywords, all other steps in the cycle continue.



### Tips:

- Convert ideas to keywords.
- Choose unique terms.
- Use Boolean operators such as AND to narrow down your search; use OR to broaden your search.

Let's look at an example:

**Topic:** The impact of Covid-19 in higher education in South Africa.

**The table below shows the keywords and synonyms extracted from the topic:**

Key words	Synonyms
Impact	Effect
Covid-19	Coronavirus
Higher education	Tertiary institutions
South Africa	RSA

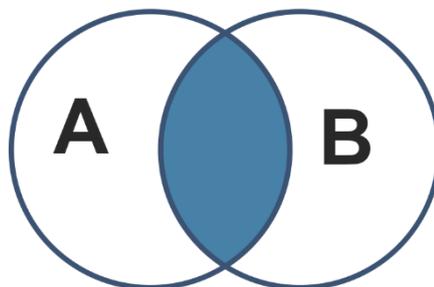
**To conduct an effective search on databases we use Boolean operators to build a search string:**

**AND** – Narrows the search.

**OR** - Broadens the search.

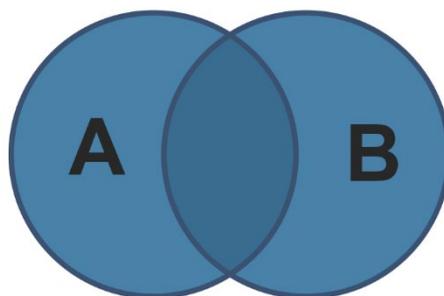
**NOT** - excludes words that are not relevant to the search.

Note: The quotation marks help us to keep a phrase together as a conceptual unit such as "South Africa".



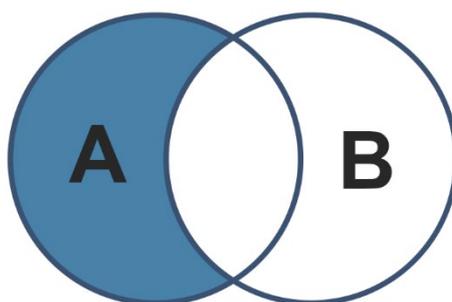
*Impact AND Covid-19 AND higher education AND "South Africa"*

**Figure 2.3: A AND B Venn Diagram**



*(Impact OR effect) AND (Covid-19 OR Coronavirus) AND (South Africa OR RSA)*

**Figure 2.4: A OR B Venn Diagram**



*Java NOT Coffee*

**Figure 2.5: A NOT B Venn Diagram**

**Final search string:**

impact AND Covid-19 AND higher education AND South Africa

**Step 3: Location and access**

Once you have defined your task and developed your search string, the third step is to locate sources and access the relevant information within them.

**We recommend following the process below:**

### **1. Determine the type of source.**

The following are scholarly sources that might be consulted to address a research question:

- Academic journals
- Books written for the academic market
- Theses and Dissertations (Interlibrary loans)
- Papers and reports delivered at academic and professional conferences
- Newspaper archives
- Online resources such as found in Google Scholar, books and journals made available by your library.

### **2. Consult your library catalogue, library reference section and online search engines**

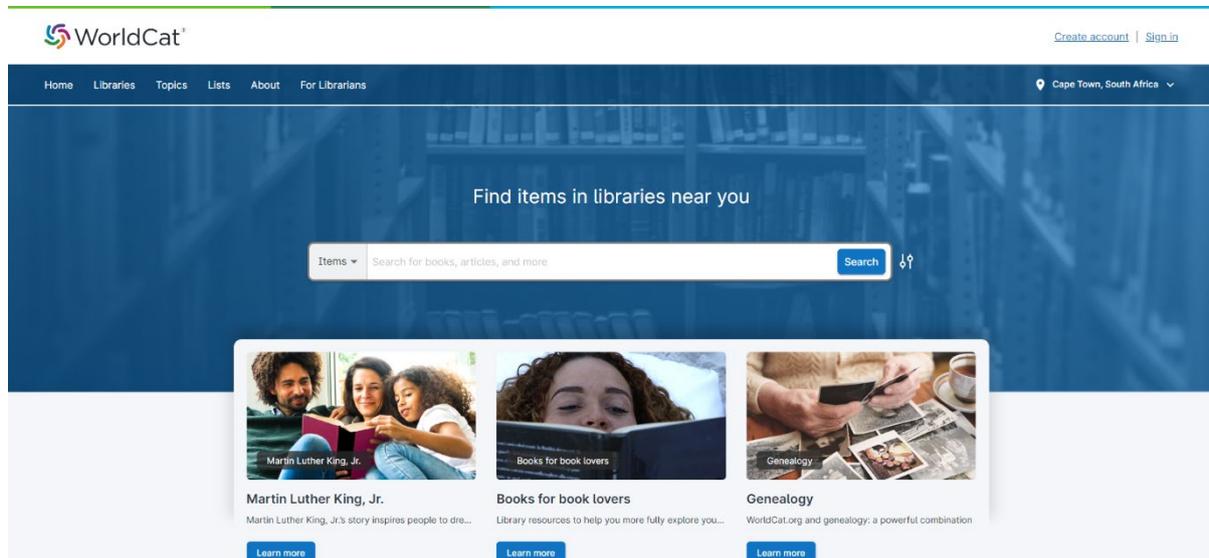
You can access these sources of information via your institution's library catalogue. This provides users with access to the library's physical and electronic holdings.

- *Library holdings refers to what a library has both physical (books, magazines, DVDs or journals) and what you can access digitally (eBooks, databases, digital magazines, streaming videos etc).*

When searching for physical materials, the library catalogue will provide the bibliographic details of the item and its shelf number which indicates where in the library it is held.

- *Bibliographic details are key pieces of information about a book or article, like the author's name, title, publication date, and publisher. They help you find and understand the item, like a roadmap for locating it in a library or citing it in a research paper.*

For electronic resources, it provides a direct link to the database or website from which it can be downloaded. Alternatives to your library catalogue can be using WorldCat or Google Scholar to search for resources.



**Figure 2.6: WorldCat Website**

WorldCat is a global online catalogue that combines the collections of many libraries worldwide, allowing users to search for and locate books, articles, and other materials. It provides a convenient way to access resources from various libraries in one centralized platform.



**Figure 2.7: Google Scholar**

Google Scholar is a freely accessible web search engine that helps you find academic sources like research papers, articles, and books written by experts. It's handy for finding reliable information for your university assignments.

If you are looking for theses and dissertations, these are accessible through your university library or via some internet sources.

*For example: OpenUCT is the University of Cape Town's [UCT] open access institutional repository that provides access to scholarly outputs produced at UCT, like theses and dissertations, journal articles, book chapters, technical and research reports.*

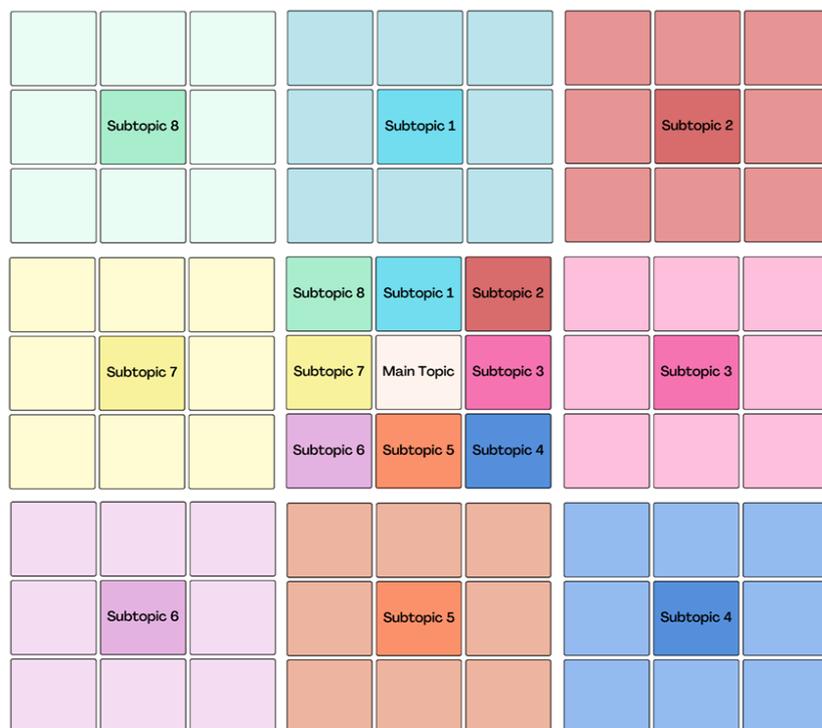
If you find scholarly resources that best suit your information needs but are not available at your institutional library or encounter paywalls, you may use the library's Interlibrary loans (ILL) service to obtain access.

### 3. Use a graphic organiser to map out your topic and subtopics.

A graphic organiser is a visual tool that is used to help organise and represent information in a structured way. It is a way to visually display ideas and concepts, and to make connections between them. Graphic organisers can take many different forms, such as diagrams, flowcharts, mind maps, tables and timelines.

A Lotus diagram is a very useful tool for outlining your topics and subtopics. To create your own Lotus diagram, you need to follow these steps:

1. Draw a 3x3 grid of squares.
2. Write down the main topic in the centre square.
3. Write down the subtopics in the other surrounding squares. These would be related topics that feed back into the main topic.
4. Draw 8 additional 3x3 square grids around the initial, centre grid.
5. Write down a subtopic in each of the eight centre squares and fill the surrounding squares with information and ideas about each subtopic.



**Figure 2.8: Lotus Diagram**

## Step 4: Evaluation

The next step is evaluation which is the exit point of the information gathering process.

It is important to evaluate your information sources as there are degrees of validity in terms of bias, quality, or accuracy of information. You need to assess the importance of determining the quality of resources found—especially online resources.

Things to keep in mind:

The CRAAP Test is a useful guide to evaluate online resources. CRAAP is an acronym for the general categories of criteria that can be used to evaluate information you find online. The following table outlines the CRAAP criteria:

<b>Currency</b>	When was the page written or site last updated?  Are the findings still relevant?
<b>Relevancy</b>	How important is the information to your need?  Is the information focused on your research questions?  Who is the intended audience?
<b>Accuracy</b>	How reliable is the information? Are sources for any information so they can be verified? Is there quality control – check for grammatical or spelling mistakes
<b>Authority</b>	Can you identify organisation/company/person responsible?  Is the author qualified to write on the topic?
<b>Purpose</b>	Who supports or funds the site? Does the funder have financial interest in the outcome of the study? Is the information objective, impartial and unbiased?

## Step 5: Use of information

You must engage with the resources, read, view and extract the most valuable information. You are encouraged to skim and scan resources to find information that addresses your essay/assignment topics.

### For example: Journal Articles

The Abstract of a journal article usually summarises the article's content. It introduces the topic, explains the focal point(s), contains the research methods and approach, as well as the findings and conclusion of the article. It is important that students read the Abstract first to see if the article is useful for their own topic.

The Introduction and Findings/Conclusion sections of a Journal Article are important sections to read after the Abstract. The introduction can be described as the outline of what is to follow in the rest of the article – the who, what, why and how. The Introduction typically serves to provide context for the research being presented and to help readers understand the significance of the study. It includes the research problem or question that the study aims to address, as well as any specific objectives or hypotheses that the research aims to test.

The Conclusion of a journal article is the final section that summarizes the main findings of the study and provides insights into the implications and significance of the results. It can also include the next steps for future research.

The next important section to read is the Research Methods/Methodology used in the study. Research methods or methodology refer to the techniques and procedures used by researchers to gather, analyse, and interpret data. After this, you may go ahead and browse through the References section, to find additional sources that may be useful for your assignment.

When using information extracted from resources, students must cite/reference the resource. Students can refer to the UCT Libraries website for a variety of referencing style guides used across courses and their relevant faculties.

**Tips:**

- Clearly identify the sources used.
- Cite both published and unpublished sources.
- Avoid plagiarism.
- List all cited sources in their Reference list or Bibliographies.

## Conclusion

Information gathering is a crucial process in projects and assignments. It involves navigating and collecting specific information from various sources to develop an effective argument. Remember to start by making sense of your research question and understanding what is required from you. This will help you develop a search strategy to find the necessary resources to complete your task. Using credible sources, such as Google Scholar, WorldCat or your library catalogue will help with finding current, relevant and accurate information.

## References

New Jersey Institute of Technology. (2024, March). How to Evaluate Information Sources. <https://researchguides.njit.edu/evaluate/CRAAP>

## Quiz questions:

### 1. Why is it important to critically evaluate information sources?

- A. To determine the purpose and audience of potential resources
- B. To gain a deeper understanding of the issue being researched
- C. To avoid reinventing the wheel
- D. To ensure reliability, validity, and accuracy of information

**Answer: D**

### 2. What is the purpose of rewriting the task question in your own words as part of the task definition process?

- A. To confuse yourself with the task requirements
- B. To save time from looking for the wrong information
- C. To increase the complexity of the task
- D. To avoid understanding the task requirements

**Answer: B**

### 3. True or False:

After defining your task, the next step is to find background information by consulting general and/or specialized dictionaries and encyclopedias to better understand your topic

**Answer: True**

### 4. What type of sources might be consulted to address a research question according to the text?

- A. Novels and fiction books
- B. Academic articles and journals
- C. Social media posts and blogs
- D. Video games and movies

**Answer: B**

### 5. True or False:

Google Scholar is a freely accessible web search engine specifically designed to help users find academic sources like research papers, articles, and books written by experts.

**Answer: True**

**6. Which of the following criteria is NOT part of the CRAAP Test for evaluating online resources?**

- A. Currency
- B. Reliability
- C. Authority
- D. Purpose

**Answer: B**

**7. True or False:**

Evaluation is the initial step in the information gathering process.

**Answer: False**

**8. True or False**

The Abstract of a journal article usually summarizes the article's content, including the research methods and approach used.

**Answer: True**

**9. What is the purpose of reading the Introduction section of a journal article?**

- A. To summarize the main findings of the study
- B. To provide context for the research being presented
- C. To list all cited sources in the Reference list
- D. To identify additional sources in the References section

**Answer: B**

**10. True or False:**

The information gathering and evaluation process can be deconstructed into five steps, including task definition, search strategy, location and access, evaluation, and use of information.

**Answer: True**

# MODULE 3

## HOW TO REVIEW/ASSESS LITERATURE

### Introduction to reviewing literature

A literature review provides a comprehensive summary of previously published materials relevant to a particular topic. It involves examining books, journal articles, and other scholarly sources related to the subject matter, organising them by theme, and critically assessing their relevance to your own research. This evaluation helps in identifying connections, contradictions, and areas of research (gaps) that have not been adequately explored within the literature you have reviewed.

### Purpose of a literature review

The main aims of conducting a literature review are:

- to develop a thorough understanding of the current research and debates relevant to a specific topic or area of study;
- to provide a critical written assessment of the existing state of research on a selected topic;
- to identify the gaps in the literature where your own arguments and discussions can be incorporated.

### Module Aims

In this module, we will cover:

- collecting relevant articles and books;
- techniques for efficient skim reading;
- organising your resources by themes;
- understanding the distinction between reviewing the literature and conducting a literature review;
- exploring the objectives and significance of a literature review;

- determining where to begin the review process;
- step-by-step guidelines for conducting a literature review;
- writing up your literature review effectively;
- proper referencing and citation practices.

By the end of this module, you will be able to **identify key concepts and terms** crucial for addressing specific topics or research questions. Additionally, you will gain proficiency in **selecting relevant databases and resources**, ensuring comprehensive coverage of the literature. Through the module, you will learn how to conduct a thorough **survey of the literature**, employing critical thinking skills **to evaluate and critique the existing research**. This module caters to individuals at the undergraduate, postgraduate, and academic levels.

## Steps to follow

Your very first literature review can be overwhelming and that's normal. So, in approaching it, it's best to follow the steps below to keep you on track, organised and stress-free.

- Choose a specified topic;
- Gather relevant resources (peer-reviewed books and articles);
- Read or skim through your resources;
- Group your resources into themes;
- Evaluate your information;
- Write up your literature review,
- Reference.

## Where to start?

The best place to start with your literature review is with your topic. Your lecturers, tutors and librarians are extremely valuable resources that can help make your literature review journey much easier. So, set up an appointment with one or all of them to really critique your topic; gathering and analysing different opinions is the core of a literature review, after all.

After you have settled on your topic, you'll find that you're already in the middle of the next step, i.e., reading articles and books that are relevant to your topic. How else will you know about the discussion surrounding your topic if you don't read about it? Reading, reading and more reading is the key to a successful literature review. But! Keep your reading relevant.



**A Note on “Bias”:** When engaged in any sort of academic writing or research, it is very important to be aware of bias and how it can affect your output. We can understand bias as favouring or opposing an idea, often because of one's own beliefs or opinions on a subject (Cambridge Dictionary, n.d.). While this sounds inherently bad, bias can be either positive or negative. The problem with bias is that it can impact the fairness of an argument. This is why, when arguing, you should always be aware of your own biases. In academia, it's completely correct to talk about one's “position” on a matter, but when you start making conclusions based on that position, regardless of what your collected research says, then your work is very likely to be accused of being biased. So be careful!

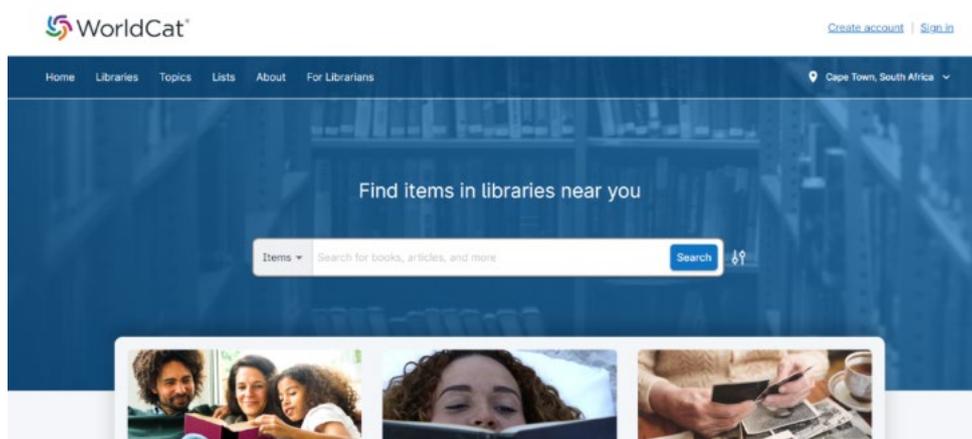
## Gathering relevant articles and books

The best place to start your search for resources is an online catalogue. In this case, we'll be using [WorldCat](#), as an example. Worldcat is an international catalogue that brings thousands of library catalogues together, so that you can easily search through them from one place. It's a wonderful tool that can be used to gather information using general terms, as opposed to journal databases which focus on specific terms within articles. This doesn't mean that journal databases should be avoided. In fact, it's encouraged that you also make use of databases in your resource search. However, if you're still getting comfortable with your topic, WorldCat is suggested as your starting

point before moving onto more specified journals or databases. Best of all, it's freely accessible from anywhere!

## Learning outcomes

- You will be empowered to seek and evaluate information resources to respond to a research question.
- You will develop foundational understanding of information gathering and will improve your research competencies.



**Figure 3.1: WorldCat website**

However, regardless of specificity, when doing a search on any platform, you should always make use of keywords. Keywords help to refine a search. Finding alternative words or synonyms for your keywords will refine your search even more. So, let's look at a quick example.

You're engaged with the following topic:

*The ethical implications of using AI for scientific research.*

In reading this topic we can say that "ethical", "AI" and "scientific research" would be important keywords (or in this case key phrases), because they sum up the general focus of the topic. A synonym or alternative phrase for "AI" could be "Artificial Intelligence", and synonyms for "scientific research" could be "scientific investigation"

or “scientific study”. It’s difficult to find a perfect synonym for “ethical”, but we can shorten it to “ethics”. A quick Google search or a good dictionary/thesaurus can provide you with an ocean of synonyms. However, it’s how you put them all together which makes the biggest difference to your search results.

For more information on how to use keywords to maximise your search strategies, check out the module on information gathering.



### **Tips for Skim Reading:**

Skimming is a selective method of reading in which you focus on the main ideas of a text (The Learning Center, University of North Carolina at Chapel Hill, n.d.). This is done by skipping or avoiding reading text that is too detailed. It’s about understanding the author’s main messages rather than the finer details. Many texts have different elements which can be skimmed such as abstracts, table of contents, blurbs, the first and last sentences, or summaries, etc. Skimming some of these elements allows one to get a general overview of the material or the text’s main ideas, arguments, evidence and conclusions.

## **Some techniques for Skim Reading**

### **1. Titles, subtitles and headings**

Skimming through a good title will inform you about the contents of the text. Subtitles provide more information or explanation about the text’s main points. Headings and subheadings contain brief descriptions of the content.

### **2. Table of contents, chapter overviews**

By reading the table of contents you can learn about the main divisions of the ideas or how the ideas are presented. A chapter overview and summaries will also save you time because they give an overview or a summary of the key points.

### 3. Introductory paragraphs, general paragraphs and conclusions

Read the entire introductory paragraph to gather background information, and the first and last sentence only of each following paragraph. For each paragraph, read only the first few words of each sentence to find the main idea. Conclusions present the main ideas and arguments, pulling everything together to help clarify the thesis of the paper.

### 4. Visual aids: pictures, graphs and charts

Visual aids such as pictures, graphs and charts are very useful in skimming. They summarise and present information visually, making it easier to understand or follow.

### 5. Keywords, bold face or italicised words

There are many other ways in which you can skim read. Sentences with keywords in boldface or italics should be read rapidly. When you believe you have discovered anything significant, pause and carefully examine the sentence to make sure. Repeat the process, making sure to read only the most crucial information. Make quick notes to highlight the main points and objectives.

## Group your resources by theme

After gathering your resources and skimming through them, you may notice patterns or themes developing. For example, a select few articles may express a certain opinion, while others may oppose this opinion. Some articles may touch on both these views, finding a middle ground, while other articles may present entirely different views altogether.

For instance, let's consider our example topic of:

*The **ethical** implications of using **AI** for **scientific research**.*



[Guidance for researchers and peer-reviewers on the ethical use of Large Language Models \(LLMs\) in scientific research workflows](#)

**Author:** [Ryan Watkins](#)

**Summary:** Abstract: For researchers interested in exploring the exciting applications of Large Language Models (LLMs) in their scientific investigations, there is currently limited guidance and few norms for them to consult. Similarly, those providing peer-reviews on research articles where LLMs were used are without conventions or standards to apply or guidelines to follow. This situation is understandable given the rapid and recent development of LLMs that are capable of valuable contributions to research workflows (such as OpenAI's ChatGPT). Nevertheless, now is the time to begin the development of norms, conventions, and standards that can be applied by researchers and peer-reviewers. By applying the principles of Artificial Intelligence (AI) ethics, we can better ensure that the use of LLMs in scientific research aligns with ethical principles and best practices. This editorial hopes to inspire further dialogue and research in this crucial area of scientific investigation

[Show less ^](#)

 **Article**, 2023

**Publication:** AI and Ethics, 20230516, 1

**Publisher:** 2023



**Figure 3.2: A quick search on WorldCat brings up an article about the ethical use of Large Language Models (LLMs)**



[Ethically governing artificial intelligence in the field of scientific research and innovation](#)

**Author:** [Elsa González-Esteban y Patrici Calvo](#)

**Summary:** Artificial Intelligence (AI) has become a double-edged sword for scientific research. While, on one hand, the incredible potential of AI and the different techniques and technologies for using it make it a product coveted by all scientific research centres and organisations and science funding agencies. On the other, the highly negative impacts that its irresponsible and self-interested use is causing, or could cause, make it a controversial tool, attracting strong criticism from those involved in the different sectors of research. This study aims to delve into the current and virtual uses of AI in scientific research and innovation in order to provide guidelines for developing and implementing a governance system to promote ethical and responsible research and innovation in the field of AI

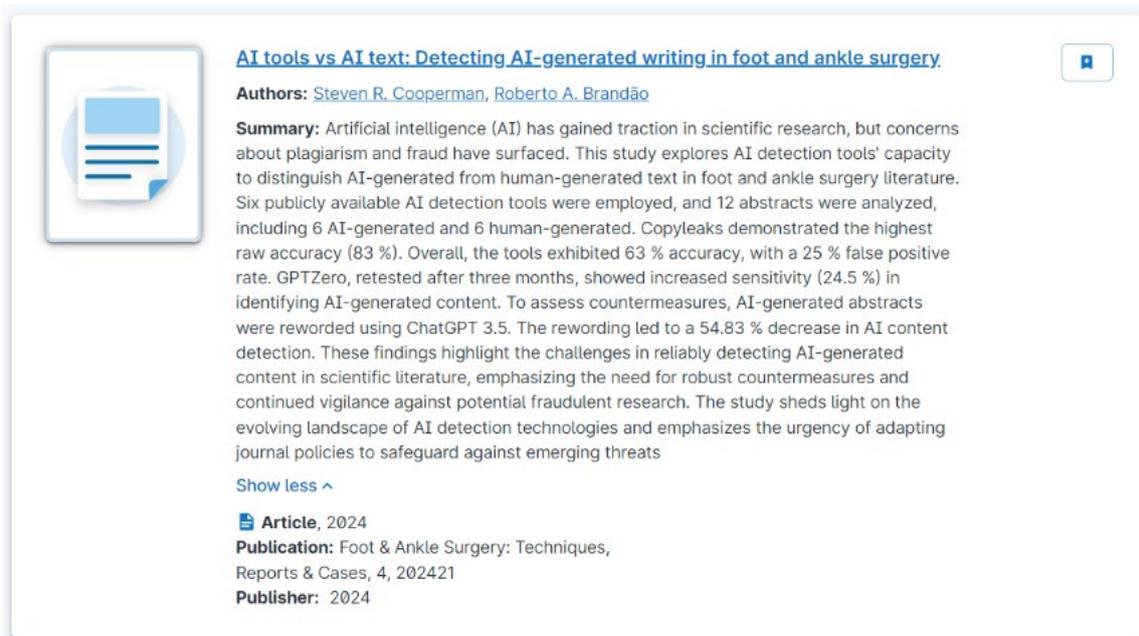
[Show less ^](#)

 **Article**

**Publication:** Heliyon, 8, February 2022



**Figure 3.3: an article that aims to create guidelines for ethical AI use**



**Figure 3.4: An article about using AI tools to combat fraudulent research by detecting AI-generated text**

From this search, you might notice that the ethics of using AI in research is talked about quite a lot, but many articles talk about different things. From guidelines to the ethical use of AI-tools, we can see that it is a natural thing for us to categorise for the purpose of creating order, even if certain things don't fit neatly into a category.

In essence, categorising by theme allows you to create order amongst your resources by finding the similarities and grouping these together. This is a lot less scary than a large group of resources all jumbled together and will help you to keep track of your own thoughts while, also, easily identifying gaps in the literature that will be of crucial importance to the arguments you make in your write-up.

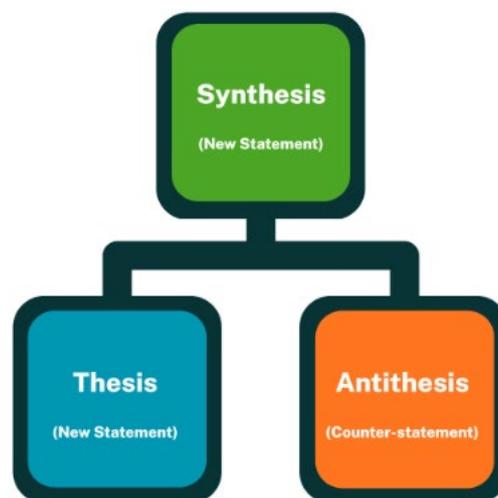
## What is an argument?

In simple terms, an argument is when you say something and have a reason for it. It becomes an argument because you give at least one reason to support what you're saying. The reasons you give are called premises. In academia, an argument can be considered to be a discussion that aims to support a statement. This could either be in terms of validating or falsifying said statement, but ultimately, all arguments contain statements which provide reasoning for whatever stance you've chosen to take. It's always better that this reasoning be backed up with factual evidence, either from your

own investigation or done by others (which you should definitely reference!). Ultimately, good academic writing requires a clear, concise and consistent argument to be carried throughout your research paper.

## Reviewing the literature vs literature review

An academic argument can be said to clearly follow the pattern of thesis + antithesis = synthesis, also known as Hegel's Dialectic. To explain this further, an argument (thesis) is made, a counterargument (antithesis) is further proposed, and, lastly, the resolution between both argument and counterargument is arrived at (synthesis). This could lead to another counterargument and then another resolution, and so on (D'Angelo, n.d.). But, if you can clearly show this pattern at work in your piece of academic writing, and, above all, if you can suggest a new synthesis of two opposing views, or demolish one of the opposing views, then you are almost certainly on the right track!



**Figure 3.5: Diagram explaining Hegel's dialectic**

Both essays and literature reviews are structured according to the very same pattern, and, for this reason, it can be a little difficult to see the difference between the two. However, if you keep in mind the main purpose of each of these, then the difference can be easily seen. In an essay, the main purpose is to prove an argument using knowledge that is relevant to said argument. Very often, not all the knowledge on a

topic is made use of. The opposite is true for a literature review, which focuses more on gathering and critically analysing all the available knowledge on a topic.

For both pieces of academic writing, you will need to consult and critically review different items/sources of literature. While 'literature reviews' function on their own as a piece of writing, reviewing and evaluating the information found in literature form a large part of it.

## **Evaluating your information**

Before you begin writing your literature review, you need to evaluate the quality of the information provided by your information sources. This can be done by using evaluation criteria which include, purpose and intended audience, authority and credibility, accuracy and reliability, currency and timeliness, and objectivity or bias. Understanding each criterion makes it easier to evaluate any information source.

## **Criteria for evaluating information**

### **1. Purpose and intended audience**

Academic writing or any form of writing is always purposeful. The purpose of a book, journal or newspaper article is to provide information. Authors write with the intent of capturing a particular audience such as academic researchers, public, students, etc.

### **2. Authority and credibility**

It is important to know who the author of your information source is, and this can be either an individual or an organisation. Authors' qualifications, experience, educational background, and expertise are critical for establishing authority and the credibility of their work. For any published work such as books or journals, always check the source's publisher or establish whether it is a peer reviewed journal.

### 3. Accuracy and reliability

The accuracy and reliability of your source can be determined by looking at whether the information is well researched. You can do this by checking to see if there are any references, citations or bibliography which serve as a source of evidence in supporting the claims of your information source.

### 4. Currency and timeliness

Always check the publication date of your information source (books and articles). This also enables you to establish whether the source is relevant for your information needs.

### 5. Objectivity or bias

To assess whether a source is objective or biased ask yourself if it offers facts or opinions, or whether the information is advocating for a specific social/political/religious agenda.

## Evaluating online sources

The best approach to evaluating any internet source is by using a popular process known as TRAAP or CRAAP. **TRAAP** stands for **T**imeframe, **R**elevance, **A**uthority **A**ccuracy, and **P**urpose. These are the aspects that help you decide on the quality of your online source. The **CRAAP** acronym (yes, we know how it sounds) also addresses the **C**urrency, **R**elevance, **A**uthority, **A**ccuracy, and **P**urpose of your source to check for its credibility. You can do the analysis by asking yourself a set of questions that are related to or covered by each term. But before we get to that, let's cover what each term means.

### Currency or timeliness

Let's look at timeliness or currency and why it's important. Remember, information changes or develops at a fast rate, so you need to check how up to date or current your content is. For example, checking the copyright of a website or when it was last updated.

## Relevance

Information is valuable when it has relevance, so ask yourself if it answers your questions or your topic. Also, depending on the online source, always consider if the level of information is basic or advanced to address your need.

## Authority

Online sources must be authoritative to be credible for academic writing. Always check if they are written or published by academics or authors that are experts in their fields. That can be established by knowing or checking the authors' details on the online source.

## Accuracy

Accuracy deals with the truthfulness, correctness, reliability, and quality of the information. As a reader, you can determine this by interrogating the source to establish where the information comes from, and whether it is supported by any form of evidence.

## Purpose

Purpose means figuring out why the information exists. An online source can be reviewed to establish whether the author's aim is to educate or serve other purposes. In an instance whereby you have visited a website, you can check the "About" page, which will help you identify its purpose.

<b>TRAAP/CRAAP analysis timeframe/currency (Is it timely for your needs?)</b>	When was the information published or posted? Has the information been revised or updated? Does your topic require current information, or will older sources work as well? If you are examining a website or online source, are the links functional?
<b>Relevance (How relevant is it?)</b>	How is the information useful to you? How well does it relate to your topic or answer your research question? What details are provided that specifically address and answer your research question or thesis?

<p><b>Authority</b> (Source of information)</p>	<p>Who is the author, editor, publisher?</p> <p>Is the author or editor an authority on the subject? How do you know? What are their credentials (such as education) or other basis of their expertise?</p> <p>Is the author/editor affiliated with a well-known organisation, university, or government agency?</p> <p>For original research, is it published in a peer-reviewed journal?</p> <p>For a web page, is it hosted by a reputable organisation, or is it someone's personal web page</p>
<p><b>Accuracy</b></p>	<p>Is the information logical, well-organised, and supported by evidence?</p> <p>Is it a research study or other original source? Are research studies, expert(s) and/or original sources discussed within the body of the work? Are references cited?</p> <p>Has it been edited or peer-reviewed?</p> <p>Can the information provided be verified in other sources?</p> <p>Are there spelling errors, grammatical errors, or other problems that indicate a lack of quality control? What is the context? Does it make sense? Is it complete?</p>
<p><b>Purpose</b> (Reason information exists)</p>	<p>Is it to inform or educate a group of people?</p> <p>Who is the <b>audience</b>? Is it written for students, consumers, professionals or children?</p> <p>Does it try to persuade the reader to a particular point of view?</p> <p>Is it selling something?</p> <p>Is it purely for entertainment?</p> <p>Do the authors make their intention(s)/purpose clear?</p> <p><i>Is it biased?</i></p>

*Is the information factual? Does the point of view appear objective and impartial? Is it an opinion? Propaganda? Is inflammatory language used?*

(University of North Carolina at Chapel Hill, 2025)

## The Write-Up

When engaged with the write-up of your literature review, it is always important to keep an eye out for the gaps in literature. 'Gaps' refer to areas where there is insufficient information surrounding a particular aspect of a topic. These can point to areas where little to no research has been done. Identifying gaps in the literature suggests spaces where your own research could possibly fit in and, in this way, can justify your own research.

Thinking critically can be demonstrated through following a series of steps when you write up your paragraph/s:

**Step 1. Describe the evidence:** What are your information sources telling you?

**Step 2. Identify the limitations or gaps?** What limitations have the various authors identified? Does other research assist in filling in the gaps?

**Step 3. Highlight alternatives: Does other research indicate contradictory findings?** Have views changed over time?

**Step 4. Synthesise the information sources to show your interpretation:** Can you summarise your position based on the process you have followed above? What does this mean for your argument or hypothesis?

Ultimately, through your literature review, your aim is to take your reader on a journey (from thesis through antithesis to synthesis). In identifying gaps in the literature, you indicate what has been explored, what has yet to be explored, and what is soon to be explored. This creates a well-structured road map for the journey you're meant to take your reader on.

## What is academic writing?

Academic writing is very different from creative or other forms of writing. Academic writing should always be backed up by evidence. At the same time, it should be both concise and focused, so that the reader can easily follow and understand it. The tone should generally be formal, but not too formal to make it complex. At the very least, long sentences and complicated vocabulary should be avoided as far as possible. See more from [UCT's Writing Centre](#).

## Characteristics of academic writing

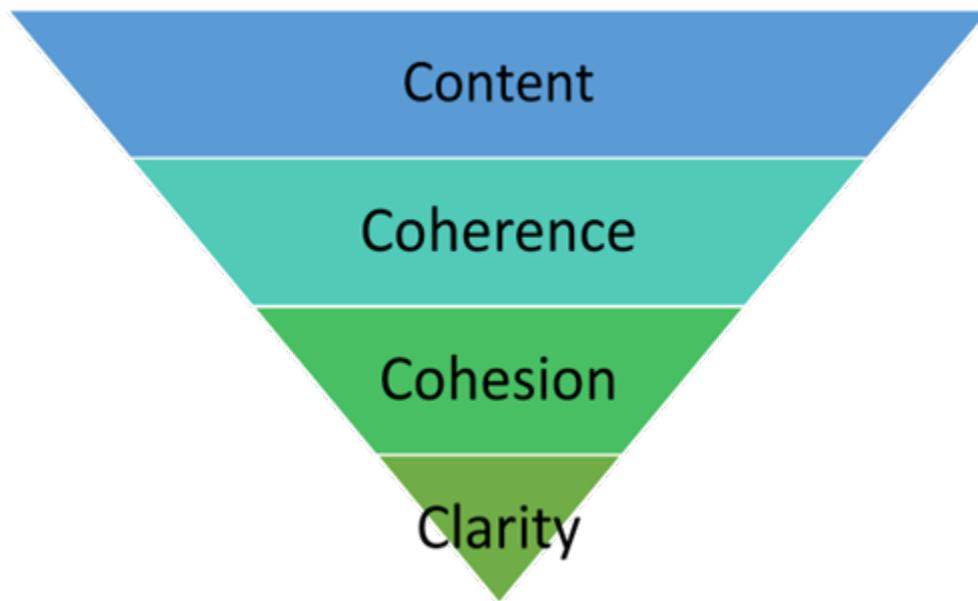
Academic writing is:

- **Planned and focused:** Answers the question and shows that you understand the topic.
- **Structured:** Puts information in order, so it makes sense and connects similar ideas.
- **Supported by evidence:** Shows you know about the topic, proves your points with facts, and mentions where you got the information.
- **Formal in tone and style:** Uses the right words and writing style, making sure it's easy to understand, short, and fair.

## Qualities of good writing

Good quality writing follows the four Cs:

- Content
- Coherence
- Cohesion
- Clarity



**Figure 3.6: The four C's (adapted from UCT Writing Centre n.d.)**

**Content** refers to the relevance of the topic, your argument, and consulting relevant sources.

**Coherence** refers to arranging your ideas in a clear, logical structure, which transitions naturally between paragraphs.

**Cohesion** holds your ideas together.

**Clarity** comes from good grammar and spelling, and concise writing.

## **Structure of academic writing**

Academic writing usually follows a similar structure and has three main components: an introduction, a body, and a conclusion.

A good **introduction** should provide an outline for your essay. You should introduce the problem or question you are attempting to address and explain how you plan to answer it.

The **body** of the text is where you discuss the ideas you introduced in your introduction. You expand upon your ideas and substantiate them with the information you have gathered through your reading by citing the works (this is the main way we avoid plagiarism).

The **conclusion** revisits the purpose of the essay, as outlined in the introduction. The conclusion should summarise the main points you made throughout the body of your essay. Try not to use the same wording as used in the body of the essay.

### Writing a good introduction

A good introduction should establish the purpose of the research paper and provide context to your reader. The introduction should also provide a road map of the research paper. Your introduction should also include a **thesis statement**. A thesis statement is the main argument of your research paper. It states how the research question will be answered. You will then use the rest of your paper to provide evidence towards this particular point of view.

### Constructing the body of the text

The body of your research paper is where you will find evidence to support your argument. This will allow you to expand upon the ideas introduced in your introduction. You will also start adding more citations to enhance and validate your statements. Ensure that each paragraph starts with a **topic sentence**. The topic sentence identifies the main idea of the paragraph as it relates to or provides evidence of your thesis statement in the introduction.

The following **supporting sentences** should provide specific details, examples, or evidence to support the main idea of the paragraph.

## Critical Writing

Critical writing means looking at information from different angles to understand a problem or topic better (University of Technology Sydney, n.d.). It involves connecting ideas logically and sharing your own thoughts based on the evidence you've reviewed (University of Technology Sydney, n.d.).

How is critical writing different from descriptive writing?

<b>Descriptive Writing</b>	<b>Critical Writing</b>
<b>Tells what happened</b>	Points out why it's important
<b>Describes a situation</b>	Questions why things happened and explores different reasons
<b>Presents a theory or argument</b>	Judges the evidence for and against the theory or argument
<b>Lists different ideas or perspectives from experts</b>	Shows how ideas are related and connected to the topic
<b>Offers choices</b>	Weighs the options and explains which one is better and why
<b>Helps readers understand the topic</b>	Gives the writer's viewpoint and encourages readers to think more deeply about their own views

(University of Technology Sydney, n.d.).

## Writing a conclusion

The conclusion revisits your thesis statement and the purpose of the research paper. The conclusion should synthesise the major points of the research paper. Remember to make reasonable final claims which are in keeping with the evidence provided throughout the research paper.

## Referencing and citation

The write-up process allows you to quote, paraphrase and summarise ideas that belong to someone else. Referencing and in-text citation gives credit or acknowledges the contribution of those whose ideas you have incorporated into your work. It is also

a way of providing evidence to support your assertions or claims and avoiding plagiarism. For more information about referencing, check out the module on referencing and plagiarism

## Conclusion

In conclusion, reviewing and assessing literature is about carefully looking at what's been written before on a topic. It helps us understand what's already known and what still needs exploring. Starting with a clear topic and gathering relevant books and articles is key. Skimming through them quickly and organising them by themes helps us see the big picture.

It's important to know the difference between just reviewing what's out there and actually putting together a literature review. The first is about checking out existing research, while the second is about bringing it all together into a clear story.

As we go through this process, we need to watch out for biases and make sure we're looking at reliable sources. When we write up our findings, we need to be clear and back up our points with evidence. And don't forget to give credit to the authors whose ideas we're using.

Overall, reviewing literature is a way to learn from what others have done and to contribute something new to the conversation. With practice and care, anyone can do it well and add to the knowledge in their field.

## Quiz questions:

### 1. Multiple Choice: How can bias affect academic writing?

- a. Bias ensures objectivity in arguments.
- b. Bias allows for diverse perspectives to be included in research.
- c. Bias can impact the fairness of an argument by favouring or opposing an idea.
- d. Bias has no effect on academic writing.

**Correct answer: c) Bias can impact the fairness of an argument by favouring or opposing an idea.**

**Explanation: Bias can lead to unfairness in arguments by favouring or opposing certain ideas based on personal beliefs or opinions.**

### 2. Multiple Choice: What is the purpose of referencing and citation in academic writing?

- a. To plagiarise the work of others.
- b. To acknowledge the contribution of other authors and avoid plagiarism.
- c. To increase the word count of the document.
- d. To confuse readers with unnecessary citations.

**Correct answer: b) To acknowledge the contribution of other authors and avoid plagiarism.**

**Explanation: Referencing and citation are essential in academic writing to give credit to the original authors and avoid plagiarism.**

### 3. True or False:

The main purpose of a literature review is to prove a specific argument using existing knowledge.

**Correct answer: False.**

**Explanation: While literature reviews do involve presenting existing knowledge, their main purpose is to provide a comprehensive summary and critical assessment of the current state of research on a selected topic.**

### 4. True or False:

Skimming through texts involves reading every word in detail to ensure a thorough understanding.

**Correct answer: False.**

**Explanation: Skimming involves selectively reading to grasp the main ideas of a text without delving into every detail.**

**5. Multiple Choice: What role do keywords play in information gathering and literature review?**

- a. Keywords are irrelevant in academic research.
- b. Keywords help in refining search strategies and maximising search results.
- c. Keywords are used to confuse readers.
- d. Keywords are only necessary for literature reviews, not for other types of research.

**Correct answer: b) Keywords help in refining search strategies and maximising search results.**

**Explanation: Keywords are essential in information gathering and literature review as they help in refining search strategies, identifying relevant sources, and maximising search results by focusing on specific terms related to the research topic.**

**6. What defines an argument in academic writing?**

- a. A statement without any justification.
- b. A conclusion supported by at least one premise.
- c. A conclusion without any reasoning.
- d. A premise without any conclusion.

**Correct answer: b) A conclusion supported by at least one premise.**

**Explanation: An argument in academic writing consists of a conclusion that is justified by at least one supporting premise. This distinguishes it from mere statements or opinions.**

**7. What does it mean to group resources by theme during the literature review process?**

- a. To identify patterns and similarities among sources
- b. To create an annotated bibliography
- c. To organise resources based on publication date
- d. To write a summary of each text for reference?

**Correct answer: a) To identify patterns and similarities among sources.**

**Explanation: Grouping resources by theme allows researchers to identify common patterns, similarities, and differences among sources, aiding in the organisation of literature and the identification of key themes.**

**8. Multiple Choice: What does the acronym TRAAP stand for in the context of evaluating online sources?**

- a. Techniques for Researching Academic Articles and Publications.
- b. Timeliness, Relevance, Authority, Accuracy, Purpose.
- c. Tips for Reliable Accessing Academic Portals.
- d. Technical Recommendations for Academic Analytical Procedures.

**Correct answer: b) Timeliness, Relevance, Authority, Accuracy, Purpose.**

**Explanation: TRAAP stands for Timeframe, Relevance, Authority, Accuracy, and Purpose, which are criteria used for evaluating the credibility of online sources.**

**9. True or False:**

An argument in academic writing consists of a claim that is not supported by any reason or evidence.

**Correct answer: False**

**Explanation: An argument in academic writing consists of a claim or conclusion that is supported by at least one reason or premise, backed up by evidence.**

**10. Multiple Choice: What is the primary purpose of conducting a literature review?**

- a. To summarize personal opinions on a topic.
- b. To critically assess existing research on a specific topic.
- c. To provide a platform for sharing personal experiences.
- d. To advocate for a particular viewpoint.

**Correct answer: b) To critically assess existing research on a specific topic.**

**Explanation: The main aim of conducting a literature review is to critically assess and summarise existing research and debates relevant to a specific topic.**

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[resources/academic-skills/how-write-](https://www.uts.edu.au/current-students/support/helps/self-help-resources/academic-skills/how-write-critically#:~:text=What%20is%20critical%20writing%3F,evaluation%20of%20the%20available%20evidence)

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[he%20available%20evidence](https://www.uts.edu.au/current-students/support/helps/self-help-resources/academic-skills/how-write-critically#:~:text=What%20is%20critical%20writing%3F,evaluation%20of%20the%20available%20evidence).

# MODULE 4

## PLAGIARISM AND REFERENCE MANAGEMENT

### Introduction

Understanding how to reference properly is very important when you write an essay/assignment. It means showing that you know your subject well and that your essay/assignment is based on reliable and valid information sources. When you write an essay/assignment about a topic, you need to look at what other people have written about it. This helps you to identify gaps, form your own ideas and arguments. But it is important to make clear which ideas are yours and which ones belong to someone else.

It is crucial to consistently recognise and credit ideas and work from others by stating where you found them and who originally came up with them. This is called referencing.

Proper reference management helps students to accurately cite sources, avoid plagiarism, and provide evidence to support their arguments. It also ensures that research is organised, accessible, and easy to update. This guide will introduce the basics of reference management, including what it is, why it is important, and how to get started.

The terms '*cite*' and '*refer*' (or 'citation' and 'reference') are frequently interchangeable because citing a piece of work entails providing a reference to its source.

## What are the objectives of referencing?

- Helps avoid plagiarism by making it clear which ideas are your own and which are someone else's
- Informs readers of the scope and depth of your reading
- Gives supporting evidence for ideas, arguments and opinions
- Allows others to identify the sources that have been used

## Learning outcomes

The student will be able to:

- Cite/reference in accordance with relevant styles
- Avoid plagiarising
- Read critically

## What is plagiarism?

Plagiarism is the act of using someone else's ideas and presenting them as your own. Plagiarism is a form of stealing and is considered a serious offense at academic institutions. There are different types of plagiarism. These are:

- Intra-corporal plagiarism, originating from the Latin 'corpus' meaning 'body', involves actions such as copying from another student in your course (Lancaster & Culwin, 2005).
- Extra-corporal plagiarism encompasses copying from an external source such as a book or journal (Lancaster & Culwin, 2005).
- Auto-plagiarism occurs when you cite your own previous essay/assignment without proper acknowledgment (University of Oxford, n.d.).

Plagiarism can be either intentional or unintentional. Intentional plagiarism is when you knowingly used another's work and presented it as your own, such as copying a friend's homework or downloading an essay from the internet and handing it in as your own work. Unintentional plagiarism is when you copy large sections of another's work, for instance copying a significant number of direct quotes or large sections from one particular author (UCT Writing Centre; University of Leeds Library).

## Obvious forms of plagiarism include:

1. Borrowing or purchasing an essay/assignment that is not yours and submitting it as yours.
2. Paying someone to write your essay/assignment for you.
3. Copying and pasting text (word for word) from someone else's work without referencing them or without using quotation marks/block quotes.
4. Directly translating an essay/assignment without referencing the author.
5. Referencing sources you didn't use in your essay/assignment.
6. Using extracts of your previous essay/assignment and not referencing yourself.
7. Using artificial intelligence and claiming it as your own essay/assignment.
8. Incorrect paraphrasing. There are many words or phrases that shouldn't be changed in order not to change the meaning. When you write your essay/assignment, you need to know the difference between paraphrasing and quoting. When you paraphrase, you need to summarise the idea and write in your own words, consider the sentence structure, and writing style.
9. Incorrect referencing. You need to reference properly in order to give credit to the source; this includes quotes and paraphrased sections as well as ideas taken from the original source.
10. Failure to acknowledge outsourced data analysis. If you had assistance with statistical data or descriptive statistics, you need to acknowledge the amount of analysis that was not your own work.

## Less obvious forms of plagiarism include:

1. Not referencing an image, diagram, table or illustration used in your essay/assignment. You need to reference any form of material that you have not created. Examples of other materials that need to be referenced include interviews that you have conducted, letters or emails.

The only instances where you do not need to reference include:

1. If the idea, insight or work is your own. If the idea, table or illustration is co-authored you still need to reference this.
2. If you wrote up the lab reports or field notes.

In academic writing we try to substantiate our arguments or facts with established writings or other credible sources of information such as Statistics South Africa, for example. When we use another's writing to validate our own points it is important to credit our sources through citation. However, copying large passages or multiple quotes can also be considered plagiarism (UCT Writing Centre; University of Leeds Library).



## **Tips for avoiding plagiarism**

**Here are some tips for avoiding plagiarism**

### **1. Ensure you have sufficient time to complete assignments**

Often, students tend to plagiarise when they don't have time to complete assignments. Start your research ahead of time and set deadlines and milestones before the final assignment is due. Stress is also a factor that increases risk of plagiarism. By ensuring you have sufficient time to complete your assignment, you are less likely to stress and plagiarise (Chegg, 2022).

### **2. Cite correctly**

It is essential to fully reference and acknowledge the work of others. Incorrect citations, missing citations, and missing quotation marks all contribute to plagiarism. Use reference managers, such as RefWorks or EndNote, while writing your assignment to ensure you have cited correctly (Kaur, 2023).

### **3. Paraphrase correctly**

Do not copy and paste. You should aim to understand the concepts and write them in your own words; paraphrase large pieces of text instead of sentences. Use a thesaurus to find synonyms, not just for words, but for phrases as well (Chegg, 2022; Kaur, 2023).

#### **4. Take notes while researching**

Reduce the risk of plagiarism through notetaking; that is, write down the content in your own words (Kaur, 2023). By taking thorough notes while researching, you can also keep track of where you are getting ideas from, and this helps to ensure you are citing your sources correctly (Chegg, 2022).

#### **5. Use trusted sources**

Use sources that are credible, such as peer-reviewed scholarly articles and books.

#### **6. Proofread your assignment**

Proofreading your assignment will help you spot plagiarism. It is important that you go through your assignment to ensure that you have cited correctly and cited all the sources that you've used (Nixon, 2018).

#### **7. Use a plagiarism checker**

Use an online plagiarism checker to check your plagiarism count. This will help show the areas where you might need to edit and paraphrase further (Nixon, 2018).

Do not merely give properly acknowledged summaries of other people's work (paraphrasing); instead, develop your own sequence of reasoning and line of argumentation.

### **Example of a plagiarism checker**

The University of Cape Town uses a plagiarism checker called Turnitin. This software empowers you to provide the best work and to ensure your academic integrity.

#### **How it works**

Turnitin takes your assignment and checks it against its internal database. The system checks if your assignment has any "matches against" or if your writing is similar to other sources. It is normal for your assignment to match sources found in its database

if you have used quotes; that is acceptable if you have referenced the source correctly. The system will produce a similarity report, which your tutor or lecturer will consult to decide if the match is acceptable or not.

This similarity report provides a summary of the highly similar text as well as the matching text found in your assignment. This report is available for viewing and will be generated after you have submitted your assignment. It will provide you with a similarity score percentage. This does, however, take some time to generate.

### Interpreting your similarity score

The percentage ranges from 0% - 100% and this is based on the amount of matching your assignment has with other sources in the Turnitin database. The ranges can be seen below:

- **Blue:** No matching text
- **Green:** One word to 24% matching text
- **Yellow:** 25-49% matching text
- **Orange:** 50-74% matching text
- **Red:** 75-100% matching text

Source: <https://guides.turnitin.com/hc/en-us/articles/23435833938701-Understanding-the-similarity-score>

### Reading critically

Reading critically means that a reader applies certain processes, models, questions, and theories that result in enhanced clarity and comprehension (Mubarok et al., 2022). Reading critically is more than just understanding the context, it is deeper, and the reader should have an open mind in order to debate the presented arguments.

### Read to understand

Reading critically is about examining the text and context. Who is the author? Who is the publisher? The purpose of the text? The discipline? Different disciplines have different methods of writing and meaning, thus it is important to determine the discipline of the resource and targeted audience (e.g., Sociology, Psychology,

Anthropology) (Mubarok et al., 2022). Where was the text written? What is the topic and what are the main ideas? Read slowly, go over difficult terms and check the meaning in the dictionary or glossaries for clarification (Gauche & Pfeiffer Flores, 2022).

### Read beyond the text

- Analyse what the text means, but in the **context** of your discipline.
- How does it **compare** to other texts/studies and to other knowledge you are gathering about the subject?
- How will you **synthesise** the different sources to serve an idea you are constructing?

It is important to understand that writing-up the assignment requires more than the ability to construct correct sentences or compose neatly organised paragraphs.

### Reading critically and critical thinking

Academic reading requires critical thinking, engaging with the text, thinking beyond the information presented, and identifying gaps (Gauche & Pfeiffer Flores, 2022). Reading critically is also related to critical listening, it is all about making judgement of what is presented and thinking further, thinking about arguments and conclusions.



#### Tips for reading critically

##### 1. Constantly take notes

A thorough critical evaluation typically involves a multitude of ideas, including an analysis of the author's claims and their deconstruction (Mubarok et al., 2022). The best way to gather all of them and use them to come up with a reasonable judgment regarding the analysed text is by constantly taking notes throughout the process. Not only does this help you keep everything fresh in your memory, but it can also help you identify any potential flaws in your arguments.

## **2. Recall and review**

Try and summarise key words and elements from the text (including strengths and weaknesses, mind map); identify gaps in your memory.

Go over your notes, focusing on parts you found difficult; re-read parts; bring everything together; and organise your notes.

## **3. Analyse the title**

Starting your analysis with the title can reveal some of the author's intentions, attitude and biases.

## **4. Focus on arguments**

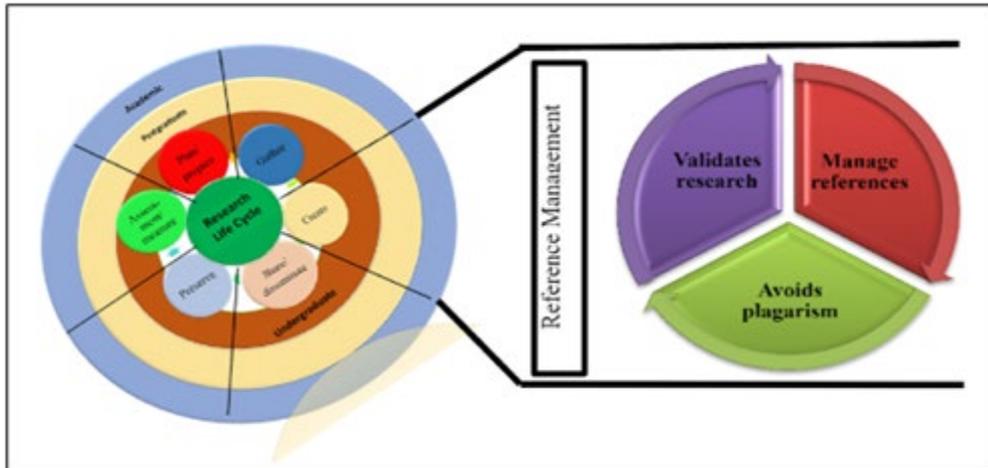
When analysing a text, try to find the passages where the authors explain their arguments and concepts, as well as how and why they developed them (Tracey & Morrow, 2024). It's likely that the text also contains other elements, such as anecdotes, stories, examples and other parts that are less relevant to critical reading. You should be disciplined in your approach and avoid prioritising them.

## **5. Read the text multiple times**

Before beginning to construct your critical analysis of a text it's best that you read it more than once. This can help you identify new ideas and approaches that you may have previously missed and is likely to help you better understand all the concepts, both separately and as a whole (Gauche & Pfeiffer Flores, 2022).

## **6. Debate your conclusions**

The last tip is to write your critical analysis. Debate your findings, gaps, connections, and contradictions (Tracey & Morrow, 2024). This may help you identify some aspects and angles that you may have missed.



**Figure 4.1: Research Lifecycle with reference management**

### OERS for reading critically

- [Writing, Reading and College Success: A First- Year Composition Course for All Learners \(Kashyap and Dyquisto\):](#)
- [Critical Reading, Critical Writing](#)

### OERS for creating an argument

- [How Arguments Work - A Guide to Writing and Analyzing Texts in College \(Mills\)](#)
- [Informed Arguments: A guide to writing and research](#)

## What is referencing?

Referencing is the process of acknowledging the contribution of other writers and researchers in an academic piece of work. Any research assignment that draws on the ideas, words or research of other writers must be cited/acknowledged.

Referencing also gives credit to the writers from whom words and ideas have been extracted. By citing the work of a particular scholar, you acknowledge and respect the intellectual property rights of that researcher.

## Why is it important to reference?

- Helps show that you have been thorough and careful (or rigorous) in your academic work
- Indicates which material is the work of another person or is from another source
- Indicates which material is your original work
- Validates and adds credibility to what you are writing, by referring to documented evidence



Figure 4.2: Image of Journal Article

## Referencing styles

There are many different referencing styles used across the different faculties of UCT. If you are unsure which style is preferred for your course, please consult your course outline or ask your course convenor.

To reference your work, you must indicate in the body of the text with a simplified version of the reference. This is referred to as in-text citation and the full citation is placed at the end of your document which makes up your reference list.

## UCT author-date

UCT author-date (formerly Harvard-UCT) is a style created by UCT academics and librarians. The style is meant to provide a simple and straightforward way of displaying references. This is an author-date style which refers to the way the in-text citations are displayed, as opposed to a footnote or a numbered style. Author-date referencing lists are displayed alphabetically, as opposed to the order wherein the reference was used. This style also requires page numbers for in-text citations. This style is used in many social sciences courses. Below are examples of the common types of referencing. For a more comprehensive list of types of references and more information on UCT author-date referencing style please consult the [full guide](#).

### In-text

#### Single author

(Author surname, year: page number)

“Impression management refers to the ways in which users present themselves to others, in this case in the online setting” (Bosch, 2021:46).

#### Two authors

“The differences between South Africa's spheroidal orthometric and normal height systems are relatively small; nonetheless, the former is more consistent with the latter than the orthometric height system” (Mphuthi & Odera, 2022:473).

#### More than three authors

“It is crucial to recognize the connection between rurality, ethnicity, race and class in order to prevent rural populations from being wrongly represented in a negative and dismissive way” (Timmis et al., 2022: 43).

### Reference\_list

#### Book, single author

Surname, initials. Year. *Title*. Place published: publisher.

Bosch, T. 2021. *Social media and everyday life in South Africa*. London: Routledge.

### **Book, multiple authors**

If there are more than three authors, only give the name of the first in an in-text citation, then add “and others” or “et al.” (the Latin abbreviation for “and others”). However, the names of all authors to a maximum of eight should appear in the reference list. Add “et al.” or “and others” after the eighth author, if there are more than eight authors.

Timmis, S., de Wet, T., Naidoo, K., Trahar, S., Lucas, L., Mgqwashu, E.M., Muhuro, P., Wisker, G. 2022. *Rural transitions to higher education in South Africa: decolonial perspectives*. London: Routledge.

### **Book chapter**

Author surname, author initials. Year. Chapter title. In *Book title*. Editor initials. Editor surname, Ed/s. Place published: publisher.

Mlambo, N. 2022. Youth and the contestation of inequality with #rhodesmustfall: challenging the status quo and an emergence of a theology of spatial justice from below. In *Faith, race and inequality amongst young adults in South Africa: contested and contesting discourses for a better future*. N. Du Doit, Ed. Stellenbosch: African SUN Media.

### **Journal article**

Author surname, author initials. Year. Article title. *Journal title*. Volume(issue): page numbers. DOI:10.xxxxxxxxxx.

Mphuthi, M.S., & Odera, P.A. 2022. Comparison between orthometric, normal and spheroidal orthometric heights over South Africa. *Applied Geomatics*. 14: 465-473. DOI:10.1007/s12518-022-00443-1.

### **Web document**

Author surname, author initials. Year. *Web page title*. Available: <http://www.website.com> [year accessed, month accessed, date accessed].

World Health Organization. 2023. *WHO ambient air quality database, 2022 update: status report*. Available: <https://www.who.int/publications/i/item/9789240047693> [2023, June 1].

## APA 7th

APA 7th edition is the referencing style created and used by the American Psychological Association specifically for use within the psychology disciplines. However, this style is widely used at the university in many other fields, such as the health and rehabilitation courses and organisational psychology. APA is also an author-date style. In APA only direct quotes require a page number in the in-text citations. For information, please consult American Psychological Association (2020). *Publication manual of the American Psychological Association: the official guide to APA style* (7th ed.). American Psychological Association.

### In-text

(Author surname, year, p. page number)

(Author surname, year)

If the Author's name forms part of the sentence, the citation will usually look like this:

Author (year) asserts...

### **Single author**

"Impression management refers to the ways in which users present themselves to others, in this case in the online setting" (Bosch, 2021, p. 46).

### **Two authors**

Mputhi & Odera (2022) argue that differences between South Africa's spheroidal orthometric and normal height systems are relatively small; nonetheless, the former is more consistent with the latter than the orthometric height system.

### **More than three authors**

“It is crucial to recognize the connection between rurality, ethnicity, race and class in order to prevent rural populations from being wrongly represented in a negative and dismissive way” (Timmis et al., 2022).

## **Reference list**

### **Book, single author**

Surname, initials. (Year). *Title*. Place published: publisher.

Bosch, T. (2021). *Social media and everyday life in South Africa*. Routledge.

### **Book, multiple authors**

If there are more than three authors, only give the name of the first in an in-text citation, then add “and others” or “et al.” (the Latin abbreviation for “and others”). However, the names of all authors to a maximum of 20 should appear in the reference list. When the work has 21 or more authors, include only the first 19 names, an ellipsis (...) and the final name.

Timmis, S., de Wet, T., Naidoo, K., Trahar, S., Lucas, L., Mqgqwashu, E.M., Muhuro, P., & Wisker, G. (2022). Rural transitions to higher education in South Africa: decolonial perspectives. Routledge.

### **Book chapter**

Author surname, author initials. (Year). Chapter title. In *Book title*. Editor surname, editor initials, Ed/s. Place published: publisher.

Mlambo, N. (2022). Youth and the contestation of inequality with #rhodesmustfall: challenging the status quo and an emergence of a theology of spatial justice from below. In N. Du Doit, (Ed.), *Faith, race and inequality amongst young adults in South Africa: contested and contesting discourses for a better future* (pp. 105-116). Stellenbosch: African SUN Media.

## Journal Article

Author surname, author initials. (Year). Article title. *Journal title*. Volume(issue): page numbers. <http://doi.org/10.xxxx/xxxxxxxx>.

Mphuthi, M.S., & Odera, P.A. (2022). Comparison between orthometric, normal and spheroidal orthometric heights over South Africa. *Applied Geomatics*. 14, 465-473. <https://doi.org/10.1007/s12518-022-00443-1>.

## Vancouver

Vancouver is a numbered referencing style. It is typically used in the medical professions and is widely used at the Health Sciences faculty. A numbered style refers to the fact that the references appear in the order in which the resources were cited as opposed to alphabetically as in the case of an author-date style.

## In-text

In-text references or citations are typically characterised by numbers either in brackets or superscript. Direct quotes also contain page numbers.

(1)<sup>1</sup>

## Single author

“Impression management refers to the ways in which users present themselves to others, in this case in the online setting”<sup>1</sup> (p. 46).

## Two authors

Mphuthi & Odera (2) argue the differences between South Africa's spheroidal orthometric and normal height systems are relatively small; nonetheless, the former is more consistent with the latter than the orthometric height system.

## More than three authors

It is crucial to recognise the connection between rurality, ethnicity, race and class in order to prevent rural populations from being wrongly represented in a negative and dismissive way. (3)

## Reference list

### Book, single author

Surname initials. Title. Place published: publisher; year.

1. Bosch T. Social media and everyday life in South Africa. London: Routledge; 2021.

### Book, multiple authors

List only the first six authors followed by 'et al.' or 'and others' after the sixth author.

Use commas to separate authors.

List the authors in the order that they appeared in the book.

2. Timmis S, de Wet T, Naidoo K, Trahar S, Lucas L, Mgqwashu EM et al. *Rural transitions to higher education in South Africa: decolonial perspectives*. London: Routledge. (2022).

### Book chapter

Author surname, author initials. Chapter title. In Editor surname editor initials, editor/s.

Book title. Place of publication: publisher; year. Page numbers.

3. Mlambo N. Youth and the contestation of inequality with #rhodesmustfall: challenging the status quo and an emergence of a theology of spatial justice from below. In: N. Du Doit, editor. *Faith, race and inequality amongst young adults in South Africa: contested and contesting discourses for a better future*. Stellenbosch: African SUN Media; 2022. p. 105-116.

### Journal Article

Author surname author initials. Article title. Journal title abbreviation\*. Year; volume:page numbers. Doi:10.xxxxxxxxxx.

4. Mphuthi MS, Odera PA. Comparison between orthometric, normal and spheroidal orthometric heights over South Africa. *Appl Geomat*. 2022; 14:465-473. Doi: 10.1007/s12518-022-00443-1.

\*Official National Library of Medicine (NLM) journal abbreviations can be found

<https://www.ncbi.nlm.nih.gov/nlmcatalog/journals/>

## Reference Management tools

Reference Management tools help you to construct your in-text references and reference lists. It is a convenient way of managing the articles, books, and book chapters you have consulted in writing up your assignments. In this way it creates a database of the articles you have used throughout your degree. While reference management tools are great and can make referencing a little easier, it is important to note that reference management tools may not be 100% accurate and it is important to have a good understanding of the reference style you are using so that you can pick up any mistakes that these tools may make. UCT subscribes to two reference management tools, EndNote and RefWorks.

### Which tool will work for you?

	RefWorks	EndNote
<b>Availability</b>	Web-based	Desktop The latest version is available to download for free through <a href="#">UCT ICTS</a> for your personal PC or Mac
<b>Word processor compatibility</b>	MS Word Google Docs	MS Word Apache OpenOffice LibreOffice Pages Wolfram Mathematica 8
<b>Citation / bibliography styles</b>	<a href="#">List of citation styles in RefWorks</a> New styles can also be created.	<a href="#">List of citation styles in EndNote</a> UCT author date is available from <a href="#">ICTS Downloads</a> New styles can also be created.
<b>Sharing / collaboration</b>	Share references with groups	Share references with groups

<b>Pros</b>	<p>Large number of citation styles</p> <p>Institutional subscription provides free access for University members including alumni</p> <p>Access your library from any computer with an internet connection</p> <p>Supports MS Word and Google Docs</p> <p>Unlimited storage</p>	<p>Institutional subscription provides free access for University members</p> <p>Copes well with a very large library</p> <p>Large number of citation styles</p> <p>Journal abbreviation recognition</p> <p>Word Processor plug in compatible with MS Word, Apache OpenOffice and Pages</p>
<b>Cons</b>	<p>Very limited offline access</p> <p>Not compatible with Libre/Open Office</p>	<p>Not compatible with Linux</p>

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# MODULE 5

## ARTIFICIAL INTELLIGENCE (AI) FOR RESEARCH

### Introduction

Artificial intelligence (AI) technologies have proliferated rapidly into a phenomenon that cannot be ignored in the academic arena, offering innovative tools that enhance research efficiency, automate repetitive tasks, and improve decision-making processes.

### What is AI?

There is no pure definition for AI and its definition remains a topic of debate among experts. However, the term 'artificial intelligence' was coined by John McCarthy in 1956 (Gravett: 2020; Sharma: 2022; Titov: 2024), which marks the inception of this field. Titov further describes AI as the creation of intelligent systems that emulate human behaviours that exhibit human-like intelligence (2024: 6). Despite varying definitions, the unifying theme of AI is programming machines to mimic human intelligence and behaviour, allowing outputs to match human efforts while reducing time and energy.

### AI tools for research – Examples

AI tools have increased over the past five years, with ChatGPT leading the way as the top generative AI tool (AGI). AI tools are utilized for many different things such as research, image creation, video development, and audio and grammar checkers. Here are a few examples:

## Research

**ChatGPT (for brainstorming)**: An AI chatbot by OpenAI, used to generate ideas and explore concepts interactively.

**Claude**: An AI assistant by Anthropic, designed for conversational tasks, drafting, and providing detailed responses.

**IdeaMap.ai**: A creative AI platform for brainstorming and organising ideas into actionable plans or visual formats.

**Perplexity**: An AI-powered search and answer tool that provides concise and accurate information by combining web search and contextual understanding.

**SciSpace**: An AI tool for researchers that simplifies academic papers, explains concepts, and enhances research understanding.

**Research Rabbit** is a powerful citation-based literature mapping tool. By adding one or more foundational 'seed' papers to your account, the tool identifies additional relevant papers aligned with the topics and references you've selected. This makes it an excellent resource for conducting comprehensive literature searches and reviews.

## Image Creation

**DALL-E** is an AI tool that generates images from text descriptions for creative and visual projects.

**MidJourney** is an AI image-generation tool that creates high-quality visuals from text prompts. This tool specialises in artistic and imaginative designs, often producing visually striking and detailed images.

## Video AI Tools

**Runway** is an AI tool for creating and editing video content. Its features include background removal and animation.

**Synthesisia** converts text into professional videos using AI-generated avatars and voices.

## Audio AI Tools

[Descript](#) is an AI tool that edits audio files, transcribes spoken words, and generates voiceovers. This tool can also be used to add narration to presentations.

## Grammar Checkers

[Grammarly](#) is an AI tool that improves grammar, spelling, and style, offering real-time suggestions for clearer and more polished writing.

[Quillbot](#) combines grammar checking with paraphrasing and tone improvements.

[Writefull](#) is an AI writing tool for academic work, offering grammar corrections, language improvements, citation checks, and templates for academic phrases.

## Understanding AI – Use

AI tools can assist in various ways to enhance simple daily tasks. Many AI-powered tools, such as ChatGPT and research assistants, can help with brainstorming, summarizing, and refining ideas. However, AI is not a substitute for critical thinking – its outputs can be biased, inaccurate or incomplete. Responsible AI use means verifying information, maintaining academic integrity, and following institutional guidelines on citation and ethical use.

## Benefits

AI tools offer a wide range of benefits for students beyond just research and writing support. They can enhance productivity by automating repetitive tasks such as formatting citations and transcribing audio lectures. AI-powered language tools can help non-English speakers refine their writing and improve clarity, making academic communication more accessible. Additionally, AI can assist with data analysis, identifying trends and patterns that might otherwise be overlooked. Some tools even provide real-time feedback on assignments, helping students improve their work before submission. By integrating AI into studies, students enhance and develop critical digital literacy skills that will be valuable in future careers. However, it is essential to approach AI use with critical thinking, ensuring that it complements rather than replaces human judgment and academic integrity.

## Risks

As great as AI tools are at helping us brainstorm and unpack concepts, there are risks involved. AI tools can often misinterpret prompts or not understand the subject matter to the extent at which you would need to understand the information. AI tools are also known to hallucinate information or references to legitimate looking journal articles or books on the subject matter. Hallucinations are unintentionally fictitious pieces of information made up by the AI tools (Janse van Rensburg & van der Westhuizen, 2024). These hallucinated pieces of information or references are a clear indication of use of AI in your work. It is important to check the information

It is also important to remember that as much information as you are getting from generative AI tools, they are also learning from you. Each query you put into AI tools means it is learning from you and about you. Data privacy is an important concern to take note of as you could potentially be leaking sensitive data about yourself to companies which own and operate these AI tools. It is also important to be aware that by uploading any information which you did not author yourself, you could be breaching intellectual property and copyright law.

AI tools are useful resources; however, it is important to remember that it is not without risk. If you are going to use these tools remember that you still need to ensure a high standard of work and maintain your academic integrity.

## AI integrity / ethical use

Generative AI tools such as ChatGPT can be a great starting point for your research, but it is important to remember that it is a tool meant to assist you but not do the work for you. Often, the purpose of your assignments is to gauge your learnings and understanding of the course material, and if you allow an AI tool to do the work you rob yourself of the opportunity to learn. Generative AI can be useful in helping you understand complex topics or creating quizzes or flashcards to prepare for tests or exams. However, there are many downsides when using AI tools: the information can be outdated, incorrect, and prone to bias. It is important to be discerning when looking at the content generated from these AI tools. Treat the results with suspicion and double check the information presented in the AI generated responses. The responses

from AI tools often contain made up (also known as 'hallucinated') references which looks like a reference to a legitimate article or research paper.

Remember to clearly indicate in your work if you have used any information from an AI tool, as copying and pasting the content directly into your work can also be considered plagiarism. This requires you to be mindful and apply critical thinking when using information generated from these tools in your work. Follow the general rules for avoiding plagiarism and use the AI generated responses sparingly.

## Citing AI tools

It is important to acknowledge if you have made use of any AI tools in your work. You can do this by citing the AI tool according to whichever referencing style is applicable to your course/institution.

## Referencing AI tools by style

### American Psychological Association (APA) 7<sup>th</sup> edition

In-text: (OpenAI, 2025)

Reference list: OpenAI. (2025). ChatGPT (May 10 version) [Large language model]. <https://chat.openai.com/chat>.

Source: [APA Style blog](#)

### Modern Language Association (MLA) 9<sup>th</sup> edition

In-text: Explain the prompt in your text, e.g. "In 200 words please discuss three core themes in Shakespeare's *Romeo and Juliet*"

Reference list: "In 200 words please discuss three core themes in Shakespeare's *Romeo and Juliet*" prompt. OpenAI, 15 May 2025, chat.openai.com.

Source: <https://style.mla.org/citing-generative-ai/>

## The Chicago Manual of Style 17<sup>th</sup> edition

In text: explain prompt in your text e.g. When prompted with “Please explain the significance of Chomsky’s role in the cognitive revolution” ChatGPT lists the following ....<sup>1</sup>

Reference list: 1. Text generated by ChatGPT, OpenAI, March 7, 2023, <https://chat.openai.com/chat>.

Source: <https://www.chicagomanualofstyle.org/qanda/data/faq/topics/Documentation/faq0422.html>

## UCT Author-Date

In-text: (OpenAI, 2025)

Reference list: Perplexity. 2024. Perplexity response to the prompt: “what are the central tenets of the hippocratic oath?” [Large language model]. Standard version.

Available: <https://www.perplexity.ai/search/what-are-the-central-tenets-of-Esnl6fD1TXmDvklElsbRA#0> [2025, 15 May].

Source: <https://libguides.lib.uct.ac.za/c.php?g=1440358&p=10698243>

## Recommendations

AI has many uses in academia; however, it is always important to consult with any guidelines laid out by your institution and department before using AI within an academic project. Use AI ethically by acknowledging where you have used it and cite it accordingly, whether it be for essays or creative projects. AI can be a fun way to learn and create study material, however you still need to be mindful of uploading potentially copyrighted material and giving access to a third-party site to others’ intellectual property, as this could have longer term consequences.

## Conclusion

AI has been an exciting innovation in education. It has provided us with many opportunities such as streamlining the creation of study material, helping us structure our thoughts, and prompting our thinking. It can help us transcribe lectures and assist non-native English speakers. However, it also creates an opportunity for potential academic misconduct, whether intentional or unintentional. Many institutions have implemented the use of AI-checkers within their plagiarism software, as the unacknowledged use of AI could be seen as academic misconduct. To protect yourself and ensure that you are engaging with the course material, try relying more on your own ideas and understanding and limiting the use of AI in your academic projects.

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