# Task Analysis – Information Bias (Arts & Humanities)

# List of Tasks:

1. Introduction
   1. Definition
2. Recognizing Bias
   1. Algorithmic Bias
3. Avoiding Bias

# Breakdown of Tasks:

|  |  |  |
| --- | --- | --- |
| Module | Specific Task | Assessment |
| 1 Introduction | In this lesson, you will be introduced to some of the different types of bias you may encounter in your research. |  |
| 1.1 Definition | Merriam-Webster provides a 4-part [definition of bias](https://www.merriam-webster.com/dictionary/bias?utm_campaign=sd&utm_medium=serp&utm_source=jsonld), which explains that it can be:   1. An inclination of temperament or outlook, especially a personal and sometimes unreasoned judgment (PREJUDICE); 2. An instance of such prejudice; 3. BENT, TENDENCY; 4. a) Deviation of the expected value of a statistical estimate from the quantity it estimates;   b) Systematic error introduced into sampling or testing by selecting or encouraging one outcome or answer over others. |  |
| 1. Types of Bias |  |  |
| 2.4 Algorithmic Bias | An [algorithm](https://prattlis.libguides.com/c.php?g=874561&p=6323729) is a systematic procedure that produces, in a finite number of steps, the answer to a question or the solution of a problem.  Algorithms may provide search results, content recommendations, or targeted advertisements based on a particular user's past actions, as well as by grouping an individual user in with a representative cohort. Many algorithms draw on big data to identify patterns and make predictions about user behaviour.  Algorithms can also [reinforce existing biases](https://libguides.scu.edu/biasinsearchengines). They must be fed data in order to make decisions, just as people use evidence and information to come to conclusions.  If there are flaws in the data used to train the algorithms, it can cause problems with the search systems that people use in their research and everyday information-seeking. Two [key sources of algorithmic bias](https://www.brookings.edu/research/algorithmic-bias-detection-and-mitigation-best-practices-and-policies-to-reduce-consumer-harms/) are:   1. **Historical human biases**: These are shaped by pervasive and often deeply embedded prejudices against certain groups, which can lead to their reproduction and amplification in algorithms. If historical biases are factored into algorithm models, it will make the same kind of inaccurate judgments that people do. 2. **Incomplete or under-representative data**: If the data used to train the algorithm are more representative of some groups of people than others, the predictions from the model may be systematically worse for unrepresented or under-represented groups.   While Google is often the target of discussion about algorithmic bias, biases are evident in most search systems (including [library technologies](https://libguides.rowan.edu/c.php?g=1033634&p=7494656#s-lg-box-23794206)) to varying degrees. However, there are many examples of the impacts of algorithmic bias that extend beyond search engines:   * Bias in [online recruitment tools](https://www.theverge.com/2018/10/10/17958784/ai-recruiting-tool-bias-amazon-report) * Bias in [word associations](https://www.princeton.edu/news/2017/04/18/biased-bots-artificial-intelligence-systems-echo-human-prejudices) * Bias in [online ads](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2208240) * Bias in [facial recognition technology](http://news.mit.edu/2018/study-finds-gender-skin-type-bias-artificial-intelligence-systems-0212) * Bias in [criminal justice algorithms](https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing) |  |
| 3. Avoiding Bias | To look for evidence of bias in your research, there are several [questions](https://stpauls-mb.libguides.com/gloabalissues/bias) to consider:   * Is the author a **known expert in the field**, with a background and credentials that can be verified? * Was the material written, published, or funded by an individual or organization with a **potential conflict of interest**? * Does the publication of this material serve to **advance a particular purpose or ideology**? * Does the author present any information obtained from source materials both **accurately and within the proper context**? * Does the author use **strong or emotional language, present opinion as fact, or use stereotypes**? * Are there any errors in the selection of source materials, the analysis, or the methodology, which might suggest a deliberate **attempt to** **satisfy or support a predetermined argument, outcome, or opinion**? * Does the material look like an **advertisement** for, or against, a particular product, service, or organization?   Sources in all formats (i.e. books, articles, websites) have the potential to exhibit a bias or agenda. Researchers should be ready to look at all materials with a critical eye and evaluate the item's contents in their entirety before using it as a source in their work.  \*\*[This is a good source](https://guides.library.oregonstate.edu/c.php?g=285991&p=1905251) that provides a chart to help students answer these questions with source examples.\*\* |  |