MAT 295: Mathematics Seminar

Information Literacy Worksheet

Researching Areas of Mathematics

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What area of mathematics are you researching? Cryptology

Note that all resources listed below can be accessed from the MAT 295 Library Resources guide that is embedded in your Brightspace course.

Reference Sources

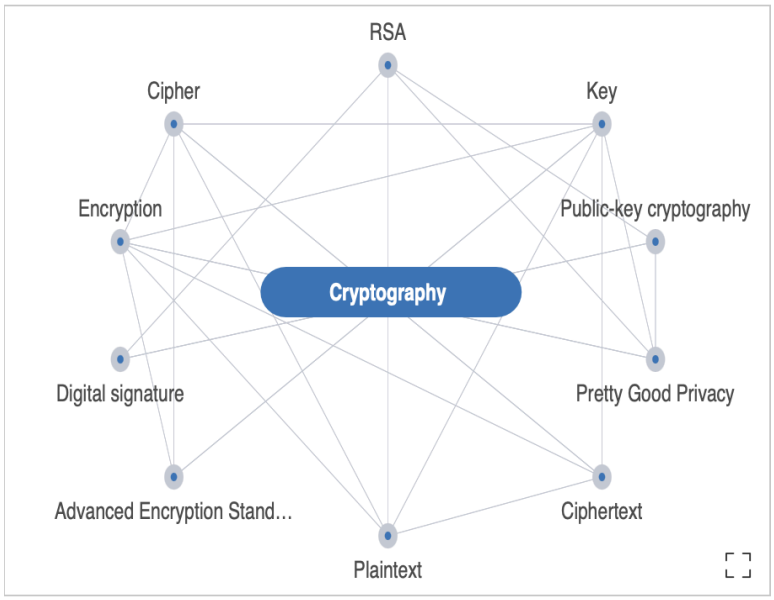
Start your exploration by looking for relevant articles in the following reference sources:

a) Access Science
b) Encyclopedia of Mathematics
c) Encyclopedia of Mathematics and Society
d) Princeton Companion to Mathematics

Scan through the two articles that seem most useful for background info on your area of math.

Based on reviewing these articles, what are some important concepts or ideas related to this area of math? These may become keywords that you can use during the research process.

Concept 1:	Information/Network security	**Concept 4:**	Ciphering
Concept 2:	Message transmission	**Concept 5:**	Secret-key system
Concept 3:	Secure communication	**Concept 6:**	Encryption



Given what you've read, write a working definition for your area of mathematics. Note: don't just copy a definition from one of the articles above, but express it in your own words.

The study and art of providing secure communication with codes. Ciphering, safe message transmission, encryption, and information security are all important components for reliable and secret data communication.

Write down anything interesting you learned about the history or applications of this area of math.

Cryptology was used in wars to send encrypted messages and communicate with allies without enemies being able to understand what they're talking about.

Books and E-Books

Books may be your best source for information on areas of mathematics. In the **Books at Meredith** search box, enter a keyword or phrase that represents your area of mathematics. Next, type AND, and add a search term such as introduc*, fundamental*, foundation*, histor*, or appli*. This will help narrow your search to books about the basics, history, or applications of your area, and avoid overly technical books.

Run the search. In your search results, use the Format limiter on the left to limit your results to Books. Write down the author and title of two useful books or e-books that you found:

Book 1

Author	Simon Sighn
Title	*The Code Book: the evolution of secrecy from Mary, Queen of Scots to quantum cryptography*

Book 2

Author	Stephen Budiansky
Title	*Code warriors : NSA's codebreakers and the secret intelligence war against the Soviet Union*

Articles

Scholarly articles will help you learn about applications in your area of mathematics. In the **Scopus** search box, enter a keyword or phrase for your area of mathematics, then type AND, and enter the keyword "application*" (or other similar words). Run the search and re-sort the results by Relevance. If you wish, filter by Subject Area (on the left) to find an article in a particular field of interest. Write down the author, article title, and journal title for a useful-looking article.

Article 1

Author	**Cao Zhenfu**
Article Title	**Finite set theory and its application to cryptology**
Journal Title	Journal of Statistical Planning and Inference