



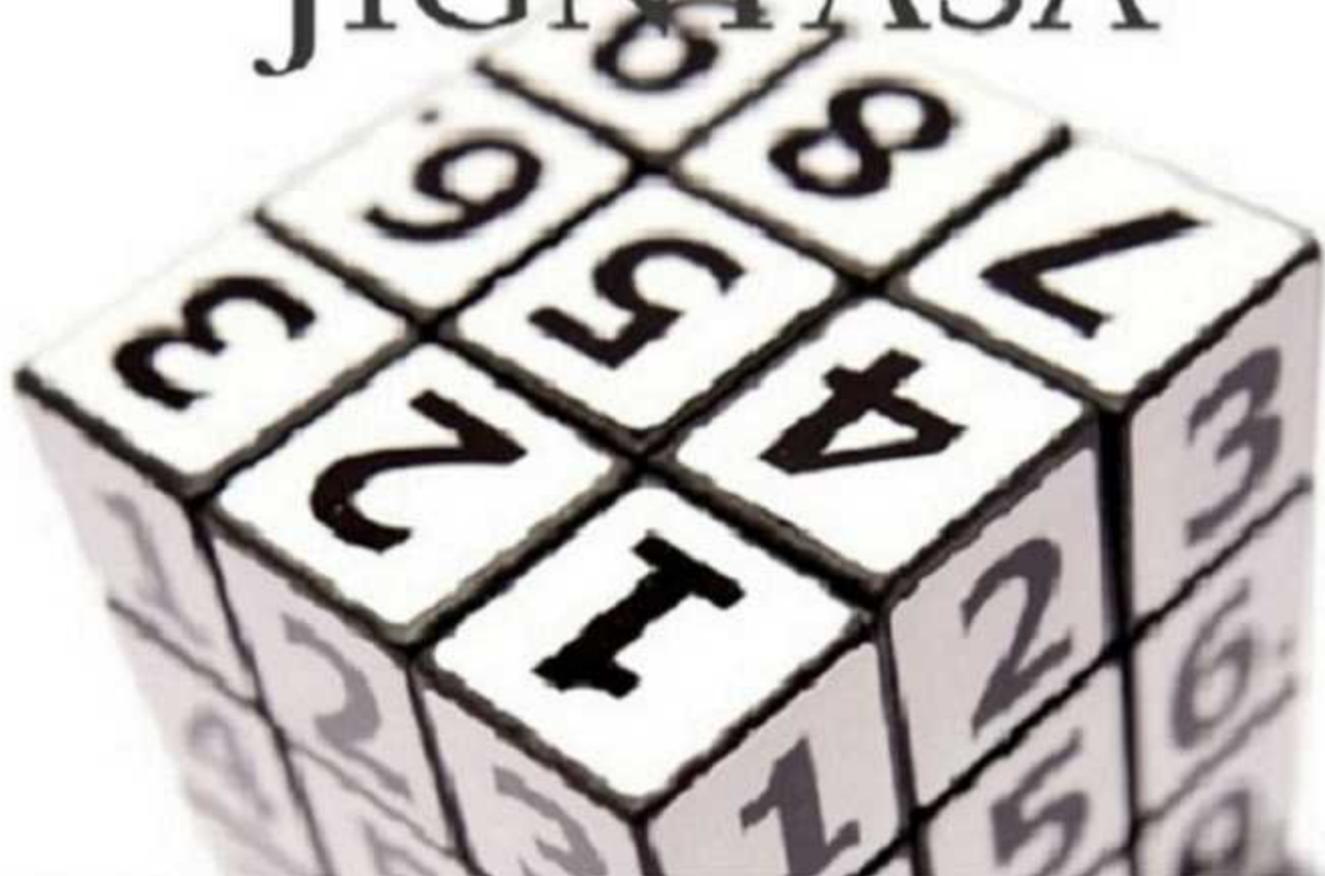
Sadhana Education Society's

Issue no. 1  
February 2017

L S Raheja College Of Arts  
and Commerce

Inhouse Departmental Publication

# JIGNYASA



Department of Mathematics and Statistics

Designed by. Jenial Shah

**SES'S**

**L.S.RAHEJA COLLEGE OF ARTS AND COMMERCE**

**INHOUSE DEPARTMENT PUBLICATION**

NAME: jignyasa

DEPARTMENT: Mathematics & statistics

ISSUE NO. 1 FEBRUARY 2017

EDITOR Mrs seema ukidve

CONTRIBUTORS: 1 seema ukidve  
2.Dr. Neelam Yadav

## **How to write a research Paper**

Writing research paper involves selecting a topic, researching the topic, outlining the paper and writing the paper. A research paper consists of a thesis statement, an introduction, body paragraphs and a conclusion. The paper must also include a page that includes a list of all the resources used to develop and support the argument of the paper. CONTINUE READING

### **KEEP LEARNING**

What is a preliminary outline for a research paper?  
Where can you find help writing the introduction for a paper?  
What is a good title for my research paper?

The first step in developing a research paper is selecting a topic. The topic should be interesting to the writer and specific enough that it can be covered thoroughly in the essay. Subjects that are overly technical, specialized or have limited source materials should be avoided.

After narrowing down the topic, find sources that support the question or problem that needs to be solved. Reliable sources for research topic can be found in journals, books and online. Make sure the information used comes from reputable sources.

Once thorough research is gathered, outline the plan for the paper. An outline serves as a map for the final paper and helps organize the information and arguments to be discussed. Establish a thesis statement. The thesis states the writer's belief about the topic.

Begin with an introduction that states the thesis and purpose of the paper. The introduction should include the major points covered in the body of the paper. After the introduction, write the body paragraphs. Present well-researched arguments that support the thesis. Save the strongest argument until the end of the paper.

The last step of a research paper is to write a conclusion. This last paragraph reminds the reader what the thesis is and summarizes the arguments developed

throughout the paper. Be sure to include a page that lists all the bibliographical information used in the paper. LEARN MORE ACADEMIC ESSAYS

### **What are the steps for writing a research paper?**

To write a research paper, choose a topic that can be adequately covered in the allotted word count, collect sources, write an outline, write the first draft, edit and add a works cited page. Subsequent drafts may be necessary the actual writing involves several more detailed steps, depending on how in-depth the paper is and what your purpose is in writing it . CONTINUE READING

When picking a subject, make sure there are enough research materials online and offline to provide adequate information.

After you choose your topic, determine the thesis, which is the central idea that your paper is trying

To convey to the reader. Write the thesis at the beginning of your outline and then come up with several supporting arguments. Three to five supporting articles are generally sufficient for shorter papers, but more may be necessary for longer papers.

Cite your work both in-text citations and a bibliography section at the end of the paper. Cite any information that isn't common knowledge, and use quotes to denote direct use of someone else's writing. The citation style you use depends on the subject of the paper. MLA is used for literature, WHEREAS apa IS used for used for history, Psychology and other humanities.

### **Q. What is the difference between thesis and topic?**

The difference between a thesis and a topic is that a thesis, also known as a thesis statement, is an assertion or conclusion regarding the interpretation of data, and a topic is the subject a research paper is based on. The thesis provides an answer to the research question. In addition, the thesis is based on facts rather than opinion, Continue

The topic of a research paper can be broad, but the longer and more complex the research paper is, the narrower the topics is. The same degree of focus applies to a

thesis or thesis statement. Research on extensive or technical data results in a more definitive thesis statement.

The thesis statement is typically included in the introduction of a research paper. It allows the researcher to posit a belief about the data based on an analysis of the data collection. The rest of the research paper is intended to provide evidence to back up the claim mentioned in the thesis statement.

One important element to include after the thesis statement and the introduction to the topic is an explanation of why the research is important. Always include a brief statement explaining how the data and research is valuable to make the paper more credible and to engage the reader. [Learn More About Academic Essays.](#)

### **Q. How do you write a research synopsis?**

A: To write a research synopsis, also called a research abstract, summarize the research paper without copying sentences exactly. It provide a brief summary of the content of the paper, including a short introduction, body and conclusion.  
Continue Reading

#### **Keep Learning**

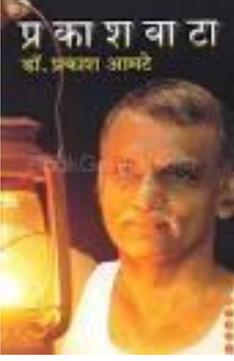
What is a sample methodology in a research paper?

What is a preliminary outline for a research paper?

One thing to remember about a research synopsis is that it describes the project in specific detail, but not the general topic. If a research paper is being done on successes of in-vitro fertilization within the infertility topic, the synopsis should talk about in-vitro and not just infertility in general. The synopsis should rely on specific details and not be overly wordy, since it needs to be descriptive but short.

The type of research project can also determine what type of synopsis to write. For example, humanity topics typically talk more about the objective, while hard and social science topics go into the methods used. Either way. The research synopsis needs to have the primary objective, methods used to reach that objective, a short list of the results and a conclusion made from that project. An ideal synopsis is no more than 125 words.

The objective of a research project is the reason, problem or issue that caused the person to do the project in the first place. It can briefly explain the motivation behind it.



## Prakashvata

This 150 a\odd pages gem can simply change your perspective towards life, make you rethink on your definition of successful life and achievements. It will make you pause for a moment and introspect your life.

To simply put he got his doctors degree, got married to another doctor, both went to the forest where no one would ever go, had n resources whats so ever, built a hut for self, learnt the language of the local Madiya Gond tribe and started giving the much needed medical help to them for free. Then he started free school for the children, zoo for the animals and did whatever it took to help those people. He just gave away his life for this purpose. Made every sacrifice for it.

There is no ego, no bragging about these things in his writing. He has simply written the facts, gave credit to people who helped in the process. There are no opinions, no grudges, no dramatization of the hardships they faced. The book is as glamour-less as the life he has lived. Its crude and pure. And hence its condensed into 150 pages.

I can't praise the book enough or can't even describe the hardships that the tribe there faced. There are many incidences described in the book that touches your heart. Here's one such incidence from the book, I have tried to translate it in English:

या कॉलेराच्या साथीतील एक प्रसंग मनाच्या तळात असा जाऊन बसलाय की ती हटतच नाही . एक बाई एका लहान मुलाला घेऊन आली होती . उपचार केल्यावर अलाइन दिल्यावर ते मुल जरा सुधारलं . त्याबरोबर तिने त्या मुलाला आमच्याकडे सोपवलं आणि ती लगेच जायला लागली . आमचा एक कार्यकर्ता तिला म्हणाला, “अशी कशी या मुलाला सोडून जातेस त्याच्याजवळ थांब त्याला पूर्ण वरं वातलं की जा .” त्यावर त्या बाईनं सांगितलं, “कॉलेराच्या साथीने काल माझा नवरा मेला . दोन्ही मुलांना लागण झाली . म्हणून त्यांना घेऊन इकडे निघाले म्तर एक मूल वाटेतच गेलं . त्याला तसंच झाडाखाली ठेवून याला घेऊन

आले . आता याला जरा बरं आहे तोवर जाऊन त्याला पुरून येते .” इतका करून प्रसंग होता हा आम्ही सगळेच सुन झलो . कोण कोणासाठी रडणार डोळ्यांतलं पाणीच आटून जावं अशी ही परिस्थिती .

Can't forget one of the incidence happened during the cholera epidemic. A women came to us with her child. After treating him, giving him Saline the child's condition improved. Keeping the child with us, she immediately started to leave. One of our volunteer asked her, "How can you leave this child in such a condition? Stay with him, let him recover completely and then leave." On that she told, "Due to cholera out break my husband died yesterday. Both the kids got infected so I started to come here, but on the way one kid died. I kept him under the tree and came with this kid. Now while this kid is ok, I'll go and bury that kid. " It was very depressing! We all were speechless. Who will cry whom? Eyes had all dried up to cry.

The book ends with how next generation has started contributing to the work and how things are done by them. They now have website called [lokbiradariprakash.org](http://lokbiradariprakash.org). Someday I would visit this place. Would like to see if I can be of any help.

# **Biomathematics**

**Biomathematics is the use of mathematical models to help understand phenomena in biology.**

Mathematical models are important tools in basic scientific research in many areas of biology, including physiology, ecology, evolution, toxicology, immunology, natural resource management, and conservation biology. The result obtained from analysis and simulation of system models are used to test and extend biological theory, and to suggest new hypotheses or experiments. Models are also widely used to synthesize available information and provide quantitative answers to practical questions. What measures can be used to reverse the decline in sea turtle populations, and how soon can we tell if they are working? How can laboratory experiments on chemical carcinogenicity be scaled up to set safe exposure limits on humans? For questions like these, where it is desirable to predict the outcome accurately before action is taken, quantitative modeling is essential.

Thus, while mathematical biology may sound like a narrow discipline, in fact it encompasses all of biology and virtually all of the mathematical sciences, including statistics, operations research, and scientific computing.

## **MEASURING LIFE**

Unlike physics and chemistry, biology is not usually a science associated with mathematics. But because there are quantifiable aspects of life science, mathematics plays a critical role in better understanding the natural world. Mathematical biology is a field of research that examines mathematical representations of biological systems.

Imagine that you are a biologist studying butterfly migrations. You go into the field and count a sample population in a confined region and then multiply your sample numbers by the total geographical range to get a population estimate. You then go back to your lab and review other researcher's reports of butterflies over the span of their migration pattern and use vector calculations to predict their future path. Finally, you examine previous years' data on the butterfly numbers and location to establish a probable error margin for your prediction. At every step of this process, you depend upon mathematics to measure, predict, and understand natural phenomena!

## **CREATING MODELS**

One key role of math in biology is the creation of mathematical models. These are equations or formulas that can predict or describe natural occurrences, such as organism behavior patterns or population changes over time. For scientists, mathematical models make it so much easier to view and describe a measurable phenomena without having to stay stuck in the raw, numerical data. Most fields of medicine are also very dependent upon mathematical models, especially with regard to the frequencies of gene expression and the spreading rates of diseases.

Migration patterns of various animals, such as these monarch butterflies, are quantifiable using mathematical biology.

### **TRACKING CHANGE**

Basic measurements of living things are often a necessary part of understanding how they change over time. This is a basic form of mathematics, but is crucial to better understanding living things. For example, the different species of finches in the Galapagos Islands, having famously been observed by Charles Darwin, have been studied by evolutionary biologists who have observed a progression in beak changes across the different species as they have specialized to eating different food sources, and on different islands. Accurately measuring the precise lengths and thicknesses of the beaks, and averaging those differences within each population, is very valuable raw data for drawing conclusions about how the species have differentiated over time

**In medicine**, mathematical models can be used to describe the spreading of a disease.

### **References:**

1. <http://study.com/academy/lesson/the-role-of-mathematics-in-biology.html>
2. <http://www.bio.vu.nl/nvtb/1.html>
3. [https://en.wikipedia.org/wiki/Mathematical\\_and\\_theoretical\\_biology](https://en.wikipedia.org/wiki/Mathematical_and_theoretical_biology)