



# MICHIGAN SOCIETY FOR MEDICAL RESEARCH

2019  
essay  
contest

## BIOMEDICAL RESEARCH TOPICS

- The importance of biomedical research and how animal models contribute to scientific discoveries and medical breakthroughs.
- Recent discoveries derived from animal-based studies in a specific area of biomedical research, and how they have contributed to progress in medical therapy.
- The large-scale benefits of animal-based biomedical research for the general population.
- How animal-based research has helped, or could impact the following: vaccines, infections, antibiotics, drugs and medical therapy.
- How animal-based research helps us understand risks from pollutants, drugs, food additives, and other chemicals in our environment.
- The importance of laws and regulations governing the use of animals in research.
- Why animal-based research is necessary and what the limitations of alternative approaches are.
- How biomedical research has helped a friend or family member; or a pet, a farm animal, or an endangered species.

## CONTEST RULES & REGULATIONS

Please read carefully and follow ALL instructions.

- All Michigan high school students, grades 9 - 12, are eligible to enter.
- The OFFICIAL ENTRY FORM must be filled out completely. Print or type all information except for student and teacher signatures at the bottom of the form.
- Each essay should be the original work of the student who enters. Essays must be free of plagiarism, meaning that: ALL sources used must be cited in the text of the essay. (DO NOT use footnotes or endnotes. ) ALL word-for-word information written by someone else must have quotation marks around it, and the source must be cited.
- Essays must be submitted in Standard English, typed on 8 1/2 x 11 white paper, be no longer 4-6 double-spaced typewritten pages, and must not exceed 1500 words.
- Each essay must include a bibliography that cites several different references relevant to the content or argument of your paper. Written sources about your topic can be from books, periodicals, and encyclopedias, as well as documented Web and oral sources. Use the following standard formats for basic bibliographies:

### BOOKS

Author. Title: Subtitle. Place of publication: Publisher, Date.

### MAGAZINE & NEWSPAPER ARTICLES

Author. "Title of Article." Title of Periodical and Volume #(DAT): pages.

### WEBSITE OR WEB PAGE

Author ( if available ) . "Title of page." Editor, Date, Institution, [ cited Access Date ] . URL.

### ENCYCLOPEDIA

Author. "Title of Article." Name of Encyclopedia. Date.

Entries accepted any time prior to the deadline, but must be postmarked by February 28, 2019

Send entries to: [mismr@umich.edu](mailto:mismr@umich.edu) OR US mail to MISMR Essay Contest • P.O. Box 3237 • Ann Arbor, MI 48106-3237

**ESSAYS THAT DO NOT COMPLY WITH CONTEST RULES & REGULATIONS WILL BE DISQUALIFIED.**

MISMR members strongly support the humane use of animal subjects in critical biomedical research. We hope that like minded citizens will join us in working for rational public policy that assures the continued appropriate use of animals in the course of good science.



# MICHIGAN SOCIETY FOR MEDICAL RESEARCH

2019  
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## OFFICIAL ENTRY FORM

DEADLINE: FEBRUARY 28, 2019

Please read carefully and follow all instructions.

A completed Official Entry Form must accompany each essay. Your essay submission must be an original and only one copy should be submitted. To facilitate the judging process, DO NOT print your name on the essay. Please clearly print or type all information. Duplication of this form is permitted.

*Essays that do not comply with the contest rules and regulations will be disqualified*

A WORD DOCUMENT WITH THIS INFORMATION IS FINE IN LIEU OF THIS FORM, AS LONG AS ALL INFORMATION IS ON IT, IN ORDER.

## STUDENT INFORMATION

FIRST NAME \_\_\_\_\_ LAST NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

HOME PHONE including area code \_\_\_\_\_

E-MAIL ADDRESS \_\_\_\_\_

GRADE LEVEL \_\_\_\_\_

CLASS TITLE \_\_\_\_\_

TITLE OF ESSAY \_\_\_\_\_

NAME OF LOCAL NEWSPAPER \_\_\_\_\_

ADDRESS OF LOCAL NEWSPAPER \_\_\_\_\_

## TEACHER INFORMATION

TITLE please check one  Mr.  Ms.  Dr.

FIRST NAME \_\_\_\_\_ LAST NAME \_\_\_\_\_

E-MAIL ADDRESS \_\_\_\_\_

## SCHOOL INFORMATION

NAME OF SCHOOL \_\_\_\_\_

E-MAIL ADDRESS \_\_\_\_\_

PHONE NUMBER (include area code) \_\_\_\_\_

I certify that this entry is my own original idea and work. I have read and understand all the contest rules and regulations.  
STUDENT SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

I have reviewed this essay and am satisfied that it complies with the contest rules and regulations.

SIGNATURE OF SCIENCE TEACHER \_\_\_\_\_ DATE \_\_\_\_\_



# TIPS... For Writing a Successful Essay

## Choosing a Topic

The main topic of the essay contest is “Why Animals Are Important in Biomedical Research.” We’ve also provided a list of general themes related to this topic. Your essay will be more successful, however, if you discuss these themes while exploring a topic of your own.

You might want to look at a disease that someone you know has, or something important to society at-large — how certain chemicals affect biological organisms, or how changes in diet affect health, or how we might respond to certain drugs or vaccines.

### Examples

One of my fellow students has been seriously overweight since elementary school. I’ve heard there is a national epidemic of childhood obesity, so I know that this is an important issue. In view of the topic “Why Animals Are Important in Biomedical Research,” I can generate the following questions:

- Are animals being used to study childhood obesity?
- Why are animal studies necessary? Are there other ways of investigating the problem that would give the same answers without using animal models?
- What are the results of these animal studies?
- How will these studies lead to progress in solving the problem of childhood obesity?

Questions like these can be generated for any subject you choose, and the answers will provide content for your essay. Their logical arrangement will create your essay’s structure.

## Research

Answering the questions you’ve generated requires research. There are two kinds of sources of information: primary sources and secondary sources. Primary sources are written by the doctors and scientists who conduct the research. They are written for other scientists and may be difficult for a student or layperson to read. However, scientific papers always include both a short abstract at the beginning that summarizes the study, and a discussion at the end that interprets the results of the study. Those two parts of the paper can usually be understood by an attentive reader. If understanding a particular paper requires more technical knowledge than you have, don’t reference it. Scientific papers include a list of references that lead to more information on your topic.

Secondary sources contain second-hand information, written by people who may have spoken to the researcher, but have probably not read the primary sources. Reporters often speak to a representative of the company or university where the researcher works, rather than to the researcher directly, which makes their information third-hand and even less reliable by the time it gets to you.

As a result, newspaper and magazine articles do not qualify as primary sources, and are not legitimate sources of scientific information. You may refer to newspapers or popular publications like Time, Newsweek or Discover for opinions about a subject, but they should not be used as sources of facts to support the points of your essay.

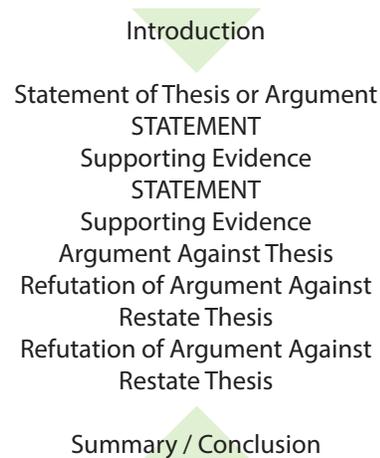
The internet offers abundant secondary sources and some primary sources. It should be approached with a highly critical mind: for example, anyone can make or change an entry in Wikipedia, whether they know about the subject or not, so Wikipedia is not a legitimate reference.

In school and local public libraries, however, we can access MEL, the Michigan Electronic Library, which contains databases of the abstracts and complete texts of thousands of primary sources, including professional journal articles written by the doctors and scientists who actually did the studies that will answer your initial set of questions. Accessing databases like Medline and Wilson through the MEL system will provide you with content for your essay.

The librarian at your school or local library is there to help you do research, and can help define search terms for effective database searches. Using our earlier example, a Google search for “childhood obesity” yields an unmanageable 2,860,000 records, most of which will be of no value for the purposes of your essay.

## Presenting Your Argument and Organizing the Facts You’ve Found

This simple diagram can guide the way in which you organize your essay.



- Each paragraph should begin with an opening statement or “topic sentence,” followed by evidence supporting it.
- It is important to acknowledge arguments against your thesis and refute them.
- Spell-check and proofread (or even better, have someone else proofread) your essay before submitting it.



Michigan Society  
for Medical Research



A Newsletter Exploring Science & Biomedical Research Issues For School Educators

### Our Mission

The Michigan Society for Medical Research (MISMR) is a nonprofit educational organization that supports biomedical research and testing and the judicious use of animals in research, education and testing in the interests of human and animal welfare. Established in 1981, MISMR is made up of the state's leading research universities, teaching hospitals, pharmaceutical companies, voluntary health organizations and hundreds of scientists, educators and students who understand and support the importance of animal research and testing in advancing health care and treatment.

### MISMR Educational Projects & Activities

#### ANNUAL ESSAY CONTEST

Every year MISMR sponsors an essay contest open to all Michigan high school students. Students from well over 500 schools in the state have annually participated in the contest to address the benefits of biomedical research. Prizes are awarded.

#### SPEAKERS BUREAU

MISMR volunteers visit K-12 schools and civic community groups throughout Michigan each year to educate the public about biomedical research and to dispel commonly held myths.

#### ANNUAL SYMPOSIUM

MISMR's popular annual meetings have often proved to be "standing room only," typically attracting local and national educators and researchers with interactive training workshops and presentations promoting biomedical research.

[www.mismr.org](http://www.mismr.org)

## How to Write a Critical Analysis Paper

By Shirley Wroblewski, BS, LVT, LATG

In order to write a critical analysis paper, you should learn two things: (1) how to think critically and (2) how to read critically. Critical thinking is defined as the "intellectually disciplined process of actively analyzing and evaluating information gathered from experience, observation, or communication as a guide to belief and action," according to the National Council for Excellence in Critical Thinking Instruction (Scriven, p1). In layman's terms, this means gathering available information regarding a topic, interpreting the relevancy of the sources, and processing the information into an intelligent way of thinking about it.

Why don't we think critically naturally? Because we have our own internal biases we tend to rely on partial information and are too busy to take the time to fully develop this necessary life skill. The ability to think critically is a skill that is required for everyone, because problem solving is needed throughout life. Essays and papers that you will write during your academic career will require you to perform the task of first thinking critically about a specific topic before you begin to write about it.

Getting started on your critical analysis paper requires choosing a topic that is of interest to you. By reading your first paragraph, the reader will be able to determine right away your enthusiasm and knowledge of the topic. Even if you are required to write about a particular topic, there may be an angle that may be more relevant to your own experiences. For example, under the heading of biomedical research there are several subtopics that you can explore. You may write about a family member or friend who has been helped because of a particular scientific discovery, or the laws and regulations regarding animal research or recent medical advances that seem intriguing to you. As you start your research, another entirely different idea may present itself to you.

As Deborah Knott, Director of University of Toronto, New College Writing Center states, "critical writing depends on critical reading." In other words, there is a certain way to process information you read in order to complete an essay or paper. When you begin to research a particular topic, you should skim through sources the first time around to get a feeling for the overall content. Then go back and reread the article, several times, to pick out details relevant to your subject matter. The key point is not to read for just information, but to look for unique ways of thinking in regard to your topic. Remember, you are not writing a book report. Instead, you are evaluating the information and making sure it accounts for the conclusions it contains. Afterwards, you are required to make your own judgments and create your own arguments based on the information that you have read.

Think & Read Critically



**Critical writing is not just about acquiring data, memorizing facts, or reiterating what someone else thinks, but is a learned skill that involves active participation by the individual to understand the topic well enough to write a balanced and well communicated paper.**



### Critical Analysis Paper... *Continued from page 1*

Research your topic by going to the library and using a variety of sources. Do not rely solely on the Internet for your references. In addition, only use Internet sources that are reputable. As you critically read each article, ask yourself the following questions:

- Why am I writing this down?
- What is especially interesting about this particular information?
- Can I see any relationship between this information and what I have already written down and learned? (Penchenik, p126)

The last question is especially important because writing an essay should enable you to delve deeply into a topic and develop a scholarly aptitude about it. It is best to take short notes on note cards because then you can make certain that you are not copying down entire sentences from your sources and that it is your ideas that you are conveying, not a plagiarized copy of what you have read. Next, sort these cards out according to the ideas on them and begin the first draft of your paper. Your first draft should be written on a pad of paper and **not** with the computer. In these days of the Internet, you may be tempted to copy and paste all kinds of sentences from various sources into a document and call it your own. Unfortunately this is not only unethical, but it is preventing any kind of critical thought process from happening and will hinder the proper development of your topic. Besides, your readers will recognize this. You must be able to understand the concepts that you are discussing and realize that there are several ways an issue can be viewed in regards to the subject that you are writing about. If you only present a portion of the story it will not create an effective argument for your conclusions.

The flow of your entire paper or essay is important. Your introductory paragraph should set the stage for what follows. Use a catchy first line to grab the reader's attention and keep the reader in mind as you continue to write so you don't lose them with unnecessary details or missing information that they might need in order to understand your position on the topic you have chosen. Each paragraph should contain a specific point of your argument and should transition to the next point. Every paragraph should follow this particular pattern:

- The topic sentence should come at or near the beginning.
- The succeeding sentences should explain, establish or develop the statement made in the topic sentence.
- The final sentence should either emphasize the thought of the topic sentence or state some important consequence (Strunk, p17).

In your final paragraph you should sum up your overall conclusions. This paragraph should not contain any new or additional information. It should simply restate the ideas or arguments that have already been presented in your paper. Be sure that you leave your readers with a concluding sentence that makes an impact and signals the end of your paper.

An important part of any writing assignment is the editing process. Once you have your initial draft on paper, then if it is not legible to someone else, you should type your paper on the computer before you edit it. Never rely on spell check alone because it will not catch homonyms like "whether" and "weather", "to", "two" and "too", and sentences in general that don't combine into an intelligent argument and paragraphs that don't flow well. You also should have at least two other people proofread your paper for grammatical errors. Be sure to include someone that has no expertise in the area that your topic is covering. Editing is an integral part in the writing process and usually, due to poor planning, a step that many people tend to skip. Avoid this mistake because the reader will not take your arguments seriously if you use improper words throughout the body of your paper. How your paper reads is as important as what your paper says.



#### WE WANT TO HEAR FROM YOU!

We want to include your stories, comments or questions relating to animals in your classroom in upcoming editions of *BioFocus*. Please email stories to: [mismr@umich.edu](mailto:mismr@umich.edu)



## Critical Analysis Paper... *Continued from page 2*

To properly finish your paper you must create a bibliography in order to:

- Give credit to all authors and sources that you have used in your research.
- Provide information in case someone would like to delve further into your topic.

All bibliographies should be double-spaced and arranged alphabetically by author, or if no author is disclosed, by title. The standard formats for documenting sources of information in research papers can be found in:

- *MLA Handbook for Writers of Research Papers*, Chapter 11, by Joseph Gibaldi
- <http://www.aresearchguide.com/sampleworks.html>

In conclusion, you should create your own library of books on how to write well, including all of those referenced in the bibliography of this article (see below). *The Elements of Style* by William Strunk is a very short (50 pages), straightforward book that summarizes the rules of grammar and the elementary principles of composition that I referred to earlier, in relation to the flow of your paragraphs. If you follow the important advice in this book and the critical thinking skills that have been outlined in this article, you will be able to write a grammatically correct and thoroughly convincing paper that will impress even the strictest professor.

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Bio**Focus** is published by the Michigan Society for Medical Research. Please send your questions, comments, and suggestions to:

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