In considering the term, “BioEthics,” one is immediately accosted by its twin aspects - namely, Biology and Ethics. The study of the intersection between these two fields is not a new pursuit and has been undertaken as a subject on its own since the early 1960s - with its roots attributable to the rapid advances made in the medical field and the radical cultural change associated with that era in human history. The term “Bioethics” was first coined by Fritz Jahr in 1927, in an article that sought to examine the “biological imperative” of the employment of plants and animals in research. Today, it is one of the fundamental considerations in all research conducted globally, with entire committees dedicated to ensure the observance of internationally recognised bioethical standards. In the following article, I will attempt to develop a brief overview of the subject, examine the principles associated with it as well as consider the need and importance of bioethics as a subject in today's society.

### Overview

In today's world, there's increasing attention given to bioethics as we are now confronted with questions and dilemmas that are unprecedented in human history. The field of biology (both medical and otherwise) has been advancing at such an incredulous pace that we are now capable of what man would have deemed nigh impossible just 50 years ago. Topics such as xenotransplantation, synthetic and artificial life, as well as IVF and animal research raise questions of ethics and morality that we never had to confront before. Against this backdrop of controversy and dilemmas, the field of bioethics comes into play - with solutions (and as is often the case, more questions) derived from the considerations of philosophy, law and politics to the questions at hand.

Bioethics has to date addressed a multitude of questions ranging from abortion and euthanasia to health care policy and the individual right to refuse treatment. The exact scope of the field is debated upon by bioethicists themselves as different individuals prescribe to different scopes - ranging from the very limited to those who examine the morality of actions that deal with any organism that is capable of fear and pain.

Bioethics employs ethical theories in philosophy in order to address some of the problems encountered in the field of clinical medicine. An increasing number of philosophers see bioethics as the practical application of philosophy in today's world as it deals with questions on the morality of actions in the clinical and research fields. Much of the bioethical discourse conducted in the public and academic arenas approach bioethical questions with a philosophical framework and structure, invoking ideas brought forth by the great philosophers of yore, such as Immanuel Kant and Jeremy Bentham, and utilising them as a means to a viable solution for the dilemmas encountered.
Principles of Bioethics

In a field such as medicine, and by extension, bioethics, it is difficult to set absolute rules and guidelines by which all cases and scenarios are measured against, due to the multitude of considerations involved. However, due to the need for standardisation, Dan Harms from the then United States Department of Health, Education and Welfare published the Belmont Report which set out to lay guidelines for the employment of human test subjects in experiments. Three fundamental principles were recommended within:

1. Respect for persons
   People are treated as autonomous entities who have the freedom of choice and are endowed with the right to make their own life choices. Persons with diminished autonomy (by virtue of illness or age) are protected, and where necessary, excluded from potentially harmful activities.

2. Beneficence
   This principle consists of two general rules. The first rule is a mirror of the Hippocratic maxim, "do not harm". The second rule dictates that in pursuing a project, all efforts are undertaken to maximise the possible benefits whilst keeping the risks at a minimum.

3. Justice
   The benefits and the burdens of the project are equally distributed wherever possible. In the event that such a distribution is not feasible, the distribution is conducted according to individual need, effort, societal contribution and merit.

   Since the release of the document, bioethicists have gone onto expand on the values highlighted within, as well as add on to this list of cardinal values, resulting in the inclusion of values such as non-maleficence, human dignity and the sanctity of life. This expansion also serves as a reflection of the continued public debate in the various bioethical issues that we have encountered.

   The principles guiding the field of bioethics have been instrumental to the consideration of various aspects in the conduct of research. Factors such as informed consent, risk/benefit analysis and the selection of research subjects can be considered as direct applications of the aforementioned principles and are invoked today in every research that requires human participants as part of the research.

Importance of Bioethics in today's society

Having examined the principles guiding the field of bioethics, it is possible to glean knowledge of its importance in this day and age by means of a simple extrapolation. We have observed in the previous section that bioethics is guided by values such as justice, respect for persons and beneficence. Thus, it can be surmised that the absence of the guiding light of bioethics would very well be analogous to a book without a rule or a nation without the constitution. The situation with bioethics is well depicted by Mr Ban Ki-Moon, the current Secretary-General of the United Nations, "Bioethics increasingly has implications for many areas of people's lives and it is important to identify common ground around which controversial discussions can take place."

   Prior to the establishment of a set of guiding principles, as set out by the field of bioethics, researchers were not bound by any governing principles in conducting their research. During the Nazi German regime during the Second World War, there were countless instances of human experimentation by German doctors, where prisoners were coerced into participating in completely unethical and horrendous experiments which frequently resulted in death, disfigurement or permanent disabilities being suffered by the participants. The Tuskegee syphilis experiment was another instance of the dangers of operating without a bioethical guidance system. Researchers in that study withheld penicillin, which was discovered to cure the disease, from the participants, all of whom suffered from the disease, in their study. In addition, they were kept uninformed about the disease and prevented from participating in available syphilis treatment programs. Both instances are valuable demonstrations of the need for a regulatory system and it highlights the need for bioethics as a governing tool to moderate the conduct of research.

   This need is all the more accentuated as new technology and scientific breakthroughs reveal more about the natural world around us, enabling us to assume the powers of life and death into our hands. In our pursuit of knowledge, it is important to maintain the integrity of human and animal rights, as they are fundamental tenets of society. Each day, new discoveries are made that further push the frontiers of science; bioethics confers us the ability to approach the ethical questions that arise in a systematic and “shared, value-based approach” (as described by Mr. Ban).

   Whilst the need for oversight has been acknowledged, it is equally important to ensure that ongoing or future research is not undermined by the hazards of over regulation. Imposing unnecessary restrictions in the conduct of experiments would possibly result in suppression and possibly stagnation of research. Likewise, under regulation would also be harmful to society. Therefore, it is important to achieve that balance in oversight and in control to ensure that whilst ethical standards are upheld, it does not come at the cost of impeding research.

   In conclusion, it can be surmised that much progress has been made in the field of bioethics, as we develop more robust sets of guidelines to steer scientific research. It has fast grown to be a field that addresses some of the most critical and pressing problems of our time and continues to grow in tandem with on going research. It is our responsibility to ensure the growth and sustenance of this vital field by encouraging public discourse and dialogue, allowing the confluence of a broad swath of ideological opinions and philosophical approaches.