Bioengineering 100

Ethics in Science and Engineering

Fall 2016

Final Exam

This exam has six components:

1. Code of Ethics final draft (10 points)
2. Case Study #1 (5 points)
3. Case Study #2 (5 points)
4. Final Reflection (5 points)
5. Final self-grade assignment (5 points)
6. Copy of Code of Ethics 2nd draft (0 points, 5 point deduction if missing)

Instructions:

1. **Please read the entire exam carefully before beginning as many components feed into each other.**
2. USE THIS TEMPLATE. Resave the file with your SID in the file name.
3. The final submission for this exam must be ONE complete pdf file. This same file must be submitted THREE times: once to each of the final exam assignments on bCourses.
4. Do not change the order of the components of the exam. The exam is ordered in the intended order of completion.
5. Enter your SID ONLY into the header. NO names.

*Submissions that do not follow these instructions will receive an automatic 5-point deduction!*

1. **CODE OF ETHICS FINAL DRAFT**

(10 points) You've been developing your code of ethics (or rather, committing a code of ethics to paper, presumably you've been developing your code for longer than that, but probably haven't articulated it as such!) through the semester and this is your final draft. Make revisions based on the feedback/comments from your peers and instructors. Add components that may be relevant based on course material covered since the prior submission (Topics #7-15\*). Again, it is NOT required (or even suggested) to include ALL topics in your code. Rather, it is useful to use the topics as possible examples where relevant and important to your code.

**Rubric for final draft (please see lecture slides from last class for more examples):**

1. **Introduction** (2.5pt): Articulates origins of core beliefs. Expanded your introduction: What/who has influenced your perspective of the world?  How has this shaped your code of ethics? Be specific. Are there individuals, places, events or experiences that have shaped your code? How have they impacted your thinking?

2. **Minimum 7 canons** (2.5pt): States at least 7 unique canons. No upper limit on total number of canons. Frame all canons as ethical dilemmas or statements, not #lifegoals. #lifegoals example:  'Be Respectful' or 'I will strive to improve and learn'. Ethical dilemma example:  "Human autonomy is more important than the greater good." or “I will value the life of and never intentionally participate in the harm of living beings unless they were posing a direct threat to another human.” Consolidate similar canons into one. Example “You should always put the public ahead of personal interests" and “Work for collective good.” can probably be combined into one.

3. **Explanations of canons** (2.5pt): Each canon has a thorough explanation detailing/analyzing the application of the canon. Be as specific as possible in your explanations and examples. For each canon, include at least one specific situation or scenario in which you demonstrate how you would apply your canon. Discuss prioritization of canons if they potentially conflict. It is easy to speak in generalities, it is the small details and nuances where things get sticky (and interesting!) and canons may conflict with each other, or there needs to be some kind of prioritization in your code. Use the case studies and topics in the class as possible examples if you don’t have any from personal experience, etc...

4. **Readability/Format/Organization** (2.5pt): Canons are organized in an obvious way. Double check that your name does not appear on the document. Overall document is clear, readable, and written in the first person. Does not exceed 4 pages typed. (For the final draft I have combined the canon organization rubric with the readability/format rubric, #3 and #5 from the prior drafts)

**\*Fall 2016 BE100 Topics**

1. Scientific/professional integrity and honesty

2. Whistleblowing and retaliation

3. Animal research

4. Human subjects research (clinical trials)

5. Human organ, tissue, cell donation

6. Drug and medical device pricing

7. Vaccination

8. Fat tax

9. Genetic modification of plants and animals

10. Reintroduction of extinct animals

11. iPSC and hESC

12. Human cloning

13. Human germline genetic modification; parents right to GM children

14. Self driving cars

15. Physician assisted dying, advance directives

My perspective of the world is greatly influenced by society and culture of India as well as the U.S. I was born and raised in India, later moved here, to the U.S, when I was 13. I believe in being honest in what I do and working as a member of society over striving for individual success. I also believe that to work as a member of society doesn’t always mean giving up individual rights since they complement each other. In a way, you could say that I am a utilitarian with respect to ethical theories.

My family also plays an important role in my perspective of the world in helping me prepare for various situations that I might face in my life. I remember my father preparing me for the worst case scenario after my years at Berkeley. He once came to me and asked for my plans after Bachelors and I replied that it was obviously getting into med school, in one of the Indian languages we speak at home. He then continued, what if you don’t get into a med school, I was completely shocked. Up until that moment I never thought of any alternatives and after that conversation, I had an alternative in mind, teaching.

They have also provided me with basic tools, using which I could achieve anything I set my mind to. They always tell me that they will support me no matter what, my mom especially says yes to anything I want to do. As a child, I wanted to be a police officer in India and she was fine with that and helped me join some camps and groups. When I changed my mind to be an engineer she used to send me to a computer café; later when I changed my mind to finance, she used to take me to her office. This to me shows extreme support and I always know that I have my family to support me which gives me an additional boost to achieve anything I set my mind to.

Some tools they have given me are simply basic views and sense I should have for the things I do. As a child, my grandmother and my uncle would tell me many Hindu myths which basically ended with truth and right prevailing over wrong. As I child I would just accept them for what they are but now I make it my responsibility to understand the things I believe in so that I can actually connect with the things in a deeper sense and have greater respect for it. One way I try to achieve this even to this day is learning more about the things that I was told as a child with a scholarly view so that I can understand their origins and motives, for example, of the Hindu myths and epics. And this code of ethics is simply an extension of things I believe in and how I would act to a particular situation without breaking my core beliefs.

1. Personal
   1. **Be honest to the best of your knowledge unless it hurts someone else**

I will always speak the truth when talking to someone and will not lie unless it is deemed necessary. I wouldn’t consider lying if the truth would directly result in someone being harmed. I believe lying is acceptable if it results in a net positive result. For example, if my brother stole my mom’s phone I would lie to my mom that he did not, to protect him. But if he were to steal money from someone I would definitely be a witness for that act and be willing to speak the truth no matter what.

* 1. **Individuals’ health should be given proper attention since it is vital for the great good of the society**

I will take good care of my health and seek necessary help when needed. That is, I will not be hesitant to go to a doctor if something seems to be wrong. This would collectively help the greater good of the community since any infections would ideally be stopped early on in its stage. For example, I would definitely get tested for malaria if I ever visit any malaria-infected country, so that I can take necessary action without infecting others in the community. And would not be hesitant to get vaccinated. To the best of my ability, I will also get others of my family vaccinated if they ever encounter a situation where vaccination would help them and the society.

* 1. **Prioritize assisted dying to individual’s wishes and advance directive and then quality of life**

When considering assisted dying, one should decide based on the individual’s statements that were previously given in advance directives, if any. If one doesn’t exist or cannot find one, the decision should be based on a conversation with the individual that hints at the decision the individual would have made. For example, if a person is in a vegetative state for about 10 years now, I would first look for an advance directive by that person to see what he/she has stated. If no statement regarding this is clear, I would see if any previous encounter with the person hints at his/her decision and proceed as required.

If I cannot conclude based on the events, then I would prioritize quality over quantity of life. That is if the person is known to live in the vegetative state for next 25 years and never return to being normal. I would pull the plug. Similarly, if I were told that a person close to me would live 6 months with a surgery and 2 without. I would ask not to proceed with the surgery given that the person would be in pain after the surgery.

1. Professional
   1. **Religious beliefs should not interfere with professional life**

Holding my religious beliefs is essential to my culture and to me since they are an integral part of the society in which I grew up in. In my professional life, however, I will not let my religious beliefs intervene. For example, I will not let creation ideas of the religion intervene with scientific theories such as The Big Bang, in such a situation I will give the widely accepted scientific theories credit over religious beliefs.

* 1. **Follow the set hierarchy in a professional setting in order to raise any complaints or issues and reserve public attention as a final option**

Any complaints or issues regarding inner workings of a system that doesn’t directly affect the public should go through the hierarchy of the setting. For example, if I have an issue regarding my pay or benefits or segregation, I will take steps to raise complaints to levels above me one after another, starting from my immediate supervisor.

If the issue, however, directly affects the public the issue should be expected to proceed faster through the same hierarchy and when this fails public attention should be called. Taking the same issue further, if the segregation is extending to the public where certain groups are denied services from the company I work for, I would follow the same hierarchy and ultimately call for public attention for the issue if it is not resolved.

* 1. **Documents should not be consciously altered and any such acts should not be encouraged or supported**

Any piece of a document should not be altered by author or the public in any sense. This alteration includes introducing any piece of data to add strength to the point, removing of data to hide irrelevant information, but this would not include the specific method or analysis performed to show how the data proves a point. For example, in a research setting, I will collect and analyze data points in a specific way but will not add points that I do not record, nor will I remove any data points. More specifically, I could opt in for z-test over t-test but within the analysis, I would not alter any values.

* 1. **Harming animals should be avoided when an alternative to the purpose exists or when the result is uncertain**

Hurting an animal should be the last reserve for any purpose, whether it be food or research. With regards to food, when I have vegetarian options for food, I will not rely on animals for my food. In terms of research, I would find other ways we can test a hypothesis, such as GWAS, and would only find animal research acceptable if it is necessary to further test the results.

Animal research should not be acceptable when we do not have a certain outcome in mind. That is, I wouldn’t let people experiment with chemicals when there is an uncertainty with regards to the side effects. This situation should also be applied to the Genetic modification of Animals and Plants. If the outcome is well analyzed and has a net positive outcome with very minimal side effects, research in this field should be continued. If not alternative methods should be explored. For example, if a genetic modification of plants to produce insulin to be injected into diabetic patients might introduce many allergens, an alternative option – such as using cows! – should be explored.

* 1. **Any research is acceptable to explore as long as it has very minimal side effects and higher potential for net benefit of the society**

I will perform any research including but not limited to, animal research, and human subjects research as long as it has minimal side effects and high benefit for the society compared to alternatives. Additionally, the outcome should be known or at least have a reasonable expectation and the selection process should treat everyone equally. One other thing to keep in mind is that the experiment should be tested in lower order animals first before being implemented in higher order animals.

For example, If I were given the ultimate authority over the Tuskegee Syphilis Study: I would consider alternatives first and since they were no viable alternative at that period I would consider human subject research acceptable if it had very small number of subjects that were given full information with regards to the design and the inner working of the study. I would also make sure the selection process of the subjects would be inclusive and not exclusive to African Americans, as in the original study.

The acceptable form of research and its implication also applies to Human germline modification since it does have a greater net utility for future generations. However, this research should be further analyzed and experimented on lower order animals such as flies, fishes, and mice before higher-order animals such as monkeys and humans.

1. Societal
   1. **Treat everyone equally when making individual decisions but in making decisions that affect the community as a whole, the greater good of the society should be given priority.**

I will treat everyone equally and will not discriminate against sex, age or any differences between humans. This is because as humans we are all equal and thus one person or group doesn’t inherently have an advantage over another. Differences between humans, however, can be violated when a large group – consisting of people with varying factors discussed above – is under a direct threat. For example, if a nuclear attack on White House is inevitable, I would first protect secretaries and the President over tour guides and tourists since the protection of the former has a greater advantage to the society. I would still try and protect the later to the best of my ability, but the priority will be given to the former.

* 1. **I will help others with everything I have unless it requires breaking of my core beliefs**

I will help others in the society with anything I have. However, I might deny helping if the requiring help shows that I would have to break other codes. For example, if I were one of the members of the STAP paper and if my team came up to me to alter the documents in order to help them in their growth, I would refuse the help since it is in direct violation of my canon regarding Professional integrity (2.3).

This can be further extended to Organ Donation where I have already signed up to donate my organs upon death. Since I would cease to exist after my death I would like to dedicate my organs to the people who need them. It’s the last help I can offer to the society. However, I am not willing to donate my organs when I am living because I regard helping others with everything I have as long as it doesn’t hurt myself or my family.

* 1. **Every religion should be respected equally and people should be facilitated to follow their beliefs**

I have great respect for my religion and expect others to give a similar respect to it. In a similar way, I will respect others’ religion as well. I will also provide others to hold their beliefs true to them. For example, I will respect Islam despite the rising negative connotations to the religion and will respect others who believe in it. When needed, I will help another person raise his/her voice for their belief.

Applying this situation to real life, if a person in my workplace is facing segregation problems I would help file a complaint and escalate it to a higher level following my code regarding Complaint Resolution in a professional setting (2.1).

* 1. **Any technology that does not show a societal benefit should not be extensively encouraged**

New technology in the 21st century includes a lot, any new technology that is currently being worked on or any that might come in the future should be able to strongly justify its uses. The public voice should also be heard on this issue with regards to further exploration of the technology; if the public decides that it is useful for them and show great support its exploration should be continued. New technologies include, but not limited to, Human Cloning and Self-driving Cars. This is essential considering the financial limitations we – as a society – have.

Applying this canon to the technologies above, I would greatly support Self-driving cars since it shows that it could benefit the society by providing more time for the drivers as well as, ideally, reducing traffic incidents.

Human cloning, however, does not show any direct benefit for the society. Therefore, the public voice should be heard by the means of voting and if the public votes in favor of human cloning it should be further explored. If not its exploration should be kept to a minimum unless it is deemed useful for the society in future. This, therefore, makes room for other technologies that currently needs attention.

* 1. **Technology regarding reintroduction of the extinct animals should be used to resurrect species that do not pose any threat to current species**

Reintroduction of extinct species should be evaluated under two terms: 1) How much does it influence the current ecosystem, 2) Does the introduced species still hold true to its original.

If the introduced species greatly affects the current ecosystem, which has evolved to live without the extinct species, then the benefit of reintroducing is no longer present. New species should not be introduced since we would force re-adaption. One great example of this would be dinosaurs, we have evolved to live without them and if we did reintroduce them we might have to face problems of protection; they should, therefore, not be reintroduced.

If the newly introduced species does not efficiently replicate its original then the purpose of reintroduction would not be fully met and thus it should not proceed. For example, if we were to clone Pyrenean Ibex and reintroduce it. And if the cloned animal doesn’t have its distinguishing horn, then it doesn’t completely represent our original species and therefore the purpose would be void.

1. **I will follow above canons with the highest priority unless a conflict arises and do my best to improve them over the course of my life**

In formulating these canons I have documented few of the most important items that I follow and would like to follow in future. This particular canon reinforces other canons and thus motivates me to follow all other canons with equal priority unless a conflict arises. All of the canons above are merely extensions of my beliefs and thus it is important to consider each one as such.

In any case of conflict, canons that are most appropriate to the situation would take higher priority. If a situation is highly connected to professional behavior, canons in the “Professional” section takes higher priority over any other canons. For example, in a professional setting canon, Religion in a professional setting (2.1) would take higher priority over Equality (3.3), meaning I wouldn’t follow canon 3.3 when another person following a different religion disregards Big Bang Theory due to his religious concerns. All members of the society, despite their religious beliefs, would need to agree to the scientific theories for future scientific progress under a professional setting.

Likewise, a canon in “Societal” category takes higher priority over other canons in a social context. This does not, however, prohibit referring to canons of one section when present in another context. For example, when eating in a restaurant with my friends, I would not eat any meat referring to Animal Welfare canon (2.4) in “Professional” category.

1. **CASE STUDY #1: The US Dietary Guidelines**

(5 points) Every five years, the US government releases dietary guidelines for Americans. There was recently a report published in the British Medical Journal regarding the scientific basis of the dietary guidelines. In response to the report, 180+ scientists signed a letter to the BMJ editor, calling for a retraction.

Read the following documents: (PDFs can be found in bCourses under Files > Final Exam)

* US Dietary Guidelines: <https://health.gov/DietaryGuidelines/>
* Original BMJ report: <http://www.bmj.com/content/351/bmj.h4962>
* Correction to the BMJ report: <http://www.bmj.com/content/351/bmj.h5686>
* Letter to the editor: <https://cspinet.org/new/201511051.html>

Using the tools you've learned and developed, answer the following questions. Limit your response to one page.

1. Should the BMJ paper be retracted? Why or why not?

I believe BMJ’s paper should be retracted due to the fact that it contains many errors that falsely accuse US Dietary Guidelines. The article on BMJ, even though provides evidence from scientific papers, fails to correctly associate the purposes of the evidence to that of DGAC – as noted in the letter. The point that the article raises should, however, be properly addressed by the committee by an official release of its methodology and why it favored – if it did – AHA and ACC over NEL.

1. Who are the stakeholders in this case? Discuss their motivations/interests in the dietary guidelines.

BMJ and the author of the article since they are the source of the article; their interest lies in gaining popularity by directly addressing a major player in US dietary Guidelines. Additionally, with regards to the sources, DGAC is another major stakeholder since they provide the guidelines and are being directly accused. Public, professional associations and scientists whose interest lie in the general health are also big players since they are the ones that act on these guidelines. Private companies in the sector of food whose interest lies in financial gains play a major role since they are able to influence the scientific literature and are capable of being influenced by suggestions in the guidelines.

1. Apply your code of ethics. Suppose you are on the committee putting together the dietary guidelines. How would you respond to the BMJ article? What action would you take, if any?

If I were on the committee my initial line of thought would be that this article is significant, not due to the fact that it accuses the committee of being influenced by private companies, instead because it puts the validity of the guideline at stake that greatly affects the society. Being an insider I would join the scientists requesting for retraction by providing more input with regards to the methodology that is being questioned at length. In addition to this, I would also re-read the papers mentioned in the article to get better insight regarding the literature and its funding sources. This is because private companies have a greater influence in the literature of this field since they are able to fund certain research that favors them.

Referring to my code of ethics on Animal welfare (2.4) I would continue support towards vegetarian diet personally but would do my best to avoid conflict of interest in this area referring to Religion in a professional setting (2.1), Equality (3.1) and Religious freedom (3.3). With regard to my points on Complaint Resolution in a professional setting (2.2), and Documents in a professional setting (2.3) I would call for a committee meeting and we would discuss if the concerned literature has any grounds in the dietary guidelines. We would discuss our line of action and I would proceed respectively to the conclusions of the committee.

1. **CASE STUDY #2: Social media and disease outbreaks**

(5 points) Personal information taken from social media, blogs, page views, etc. are used to detect disease outbreaks, however, there are various ethical issue around this subject.

Read the following documents: (PDFs can be found in bCourses under Files >Final Exam):

* News release: <https://www.sciencedaily.com/releases/2015/02/150209143440.htm>
* Primary PLOS article: <http://dx.doi.org/10.1371/journal.pcbi.1003904>

Using the tools you've learned and developed, answer the following questions. Limit your response to one page.

1. Who are the stakeholders in this case? Discuss their motivations/interests in using big data for disease outbreak prediction.

General public are the first of the major stakeholders since they are directly affected by this technology. They also play an important role for this technology to work since they are the sources of the data that this tech relies on and their interest lies in the potential benefit and in the areas of individual rights. Another important stakeholder, in this case, is the internet companies especially the ones in the field of data collection and social networks such as Google and Facebook. They are the tech’s primary sources of the data since they house the majority of the data that would be used for disease outbreak predictions. As private companies their motivation would be financial gains. Other stakeholders that play a major part in the development of this technology are the government and public health sectors. The general interest for both of these stakeholders is the public gains with regards to health. Their role would be in the regulation of the technology and taking action for any predictions from DDD.

1. The primary article describes three ethical challenges in this case. Are any of them significant enough to stop scientists from using social media to predict disease outbreaks? Discuss why or why not.

I believe that the “Nexus of ethics and methodology” challenge is significant while the other two just extends already existing challenges to this application. Context sensitivity revolves around whether the societal benefit should outweigh the loss of individual right. This challenge, however, already exists with the rising dependency on the internet. Data collection infrastructure is already in place by companies such as Google, and whether DDD justifies individual rights directly depends on the anonymity of the data collected by already existing infrastructure. Therefore this challenge is not significant enough to stop scientists from using existing tech and apply it in a different way. Similarly, Bootstrapping legitimacy discusses issues regarding governance of data and this issue is again feeding off of existing ambiguity within the ownership of data that is currently being collected for other uses, such as searches, networking etc.

Nexus of ethics and methodology, for its specific nature to the application in DDD, is very significant and should be extensively considered before taking any further action. Since other uses of big data do not pose the same threats as false positives of DDD, this particular case should be evaluated individually. Results from DDD should be handled with care since false positive are currently inevitable due to the nature of human-created algorithms. Any actions taken on results, that has the possibility of being a false positive, can be destructive; this challenge is significant enough to stop scientists from using social media to predict disease outbreaks. An alternative solution would be to further verify any results before acting in an effort to minimize lateral damage.

1. Apply your code of ethics to address the following statement: “Privately collected data should be open to global public health uses.” Discuss why you agree or disagree.

From my code of ethics, 3 of the canons apply to the statement above – Individual’s health (1.2), Research and exploration (2.5), and Equality (3.1). I do agree with the statement above that privately collected data should be open for public health uses as long as it doesn’t influence and restrict other services offered to the group or individual.

As noted in the article, public health is at a greater risk now than in the past due to the connected nature of the world we live in. This issue due to its severity can’t be ignored and for the greater good of the society, we should be researching options to solve the issue at hand (2.5). One of the plausible alternatives we have is DDD where individual explicitly or implicitly give information regarding their health with the intent of better society overall (1.2). At the same time, we have issues regarding individual right where it is easily foreseeable that certain companies and government can use this new information to deny services, essentially discriminating certain individuals and groups (3.1), and this issue has additional ethical concerns when the information has the possibility of being a false positive. For example, an insurance company can increase its price and deny services to certain areas. And a country can deny visitors from certain countries due to their potential risk of being carriers. Therefore, the alternative at hand should be used as a preventative method and curing method where medical groups are deployed earlier to the area at risk and not as a restrictive method where the groups are denied other services.

1. **FINAL REFLECTION**

(5 points) We’ve covered quite a few topics related to ethics in science and engineering over the semester. Review your weekly reflections, your Poll Everywhere responses, case study materials, lecture slides, debate peer reviews, and code of ethics. In particular, re-read your very first reflection, where you articulated your goals for the class. Did you achieve those goals? Did they change over the semester? What will you take away from this class? Looking back, are there topics, ideas, debates, discussions or case studies that stand out in your mind? Were there times where your thoughts, opinions, or feelings surprised you? Discuss! Limit your response to this page.

When I began this course, my goal for this class was simple: to get general input on controversial topics and to understand how to act in the correct manner. I do believe that I was able to achieve both of these goals. Today, I do have a method which I follow to assess the correct way of acting when deciding on an ethical dilemma, the 4 A’s, and have both general and specific input on some of the topics that I wanted to gain more insight about. My goals, however, did change at times during the semester. During the introduction of the class the code of ethics didn’t really get my attention, but after reading some codes for the reflections my goal was to formulate a perfect code of ethics that I could refer to and show others, which I hope I have in this final.

From this class as a whole, I have a lot to take away, which closely ties with things I remember looking back at this course. During the beginning of the semester, I remember an activity with the red and blue group showing differences between privileged and unprivileged; from this, I take away that there are groups in this world that are less privileged than me and therefore I should somehow help them in future, possibly through medical care. From the topics regarding FDA, endoscopes, and EpiPens, I see how some instruments – even tough harmful – should not be recalled for the losses that we might get if they are removed from the market, even if it is for a short period of time. And from the debates I like the general idea, especially towards the end, that we [society] should not ban or remove a technology just for its incompleteness; we should rather focus on developing the technology and imposing regulations to get the most benefit from the technology.

Another important case study that stands out among the vast pool of case studies that we’ve covered is the one about Tylenol and cyanide contamination. This case study had many factors and showed a lot to learn from. It showed how a company should act in such situation and that companies should be responsible for their product. The personal accounts from its manager showed the respect a company can give to its employees. And its Credo showed that the code of ethics has to change in a dynamic world we live in.

My thoughts during the course mostly surprised me during the very end when we began to talk about death, assisted dying and advance directives. Up until that moment, I was surprised mostly with the materials such as STAP paper, where big names would commit such an act. As we talked about death, I hadn’t previously thought about it in such ways. To be honest, I never thought about the process of dying at all, and when discussing with my partner I had some disagreements. Nonetheless, both of us concluded that we generally did not care about the process of dying itself but we cared a lot about its consequences on our loved ones. After the discussion, we still had ambiguity with regards to why we would care – about anything for that matter – after death since we won’t exist at all. And there was one special case that we considered which added another layer of complexity; dying in sleep. If we were to die in sleep we can’t consider losing control over the body or brain since we won’t have it, to begin with, and if we were to die in our sleep how would we know if we’re actually dead?

1. **FINAL SELF-GRADE ASSIGNMENT**

You have the opportunity to make a case for your final grade in this class. This is an exercise in professional responsibility and honesty, and is an opportunity to apply your code of ethics to a real academic situation. Note: This does not commit the instructors to any final grade, but will be used as guidance.

Complete the following information. Limit total responses to this page:

1. Your current bCourses grade: **\_99.29\_%**
2. Your self-assigned letter grade\*: **\_A+\_**
3. Justify your response above. Why do you deserve the grade you assigned yourself? How does your body of work over the semester meet the quality that you associate with that grade?

I believe that I deserve an A+ for this class since I have met all the conditions required for the course material as well as my goals. My current grade on a straight scale, shown below, also refers to an A+. I have also shown that I understand the concepts discussed in the class through my reflections. As noted at the beginning of the semester, this class is not about being right or wrong, it is about getting the thought through and about understanding why we believe what we believe in. As I write this final exam I have gained a clear understanding of my beliefs and have ways to back them up when they are questioned.

Additionally, I would like to reason the grade I give myself using ethical theories of the class: Utilitarian and Common good approach. If I were to get an A or A+ in this class I would have a better GPA which in turn would benefit me in getting into med school. And after med school I would add to the pool of doctors, thus helping society. Therefore this grade would have a greater net utility for the society.

1. Refer to your code of ethics. How does it apply here? Discuss briefly.

Two of the canons from my code of ethics directly apply here: Honesty (1.1) and Documents in a professional setting (2.3). With regard to 1.1, I have explained why I deserve an A+ very honestly above and I have explicitly stated that it would greatly help my GPA. As far as 2.3 is concerned, I did include everything that I consider is important given the limited space we are allowed to utilize for this section. And one of the major components for this class is the weekly reflections. It is very important to consider the work a student puts into his reflection in this class since ethics can’t be graded using the traditional right and wrong approach; it has to be evaluated objectively. Grade in this class, I believe, should be based on the work we have put into the reflections and whether we have understood the concepts taught in the lectures.

\*For reference, a typical straight grading scale is as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A+: 98-100% | A: 93-97% | A-: 90-92% | B+: 87-89% | B: 83-86% | B-: 80-82% |
| C+: 77-79% | C: 73-76% | C-: 70-72% | D: 60-69% | F: 0-59% |  |

1. **COPY OF CODE OF ETHICS DRAFT #2**

My perspective of the world, as well as others’, is very unique and I believe my perspective is greatly influenced by society and culture of India as well as the U.S. I was born and raised in India later moved here, to the U.S, when I was 13. I believe in being honest in what I do and working as a member of society over striving for individual success. I also believe that to work as a member of society doesn’t always mean giving up individual rights since they complement each other. In a way, you could say that I am a utilitarian with respect to ethical theories.

My family also plays an important role in my perspective of the world in helping me prepare for various situations that I might face in my life. They have also provided me with basic tools, using which I could achieve anything I set my mind to. These tools are simply basic views and sense I should have for the things I do. These tools show great respect to the religion I follow and at the same time shows me how to appreciate other religions of the society. I make it my responsibility to understand the things I believe in so that I can actually connect with the things in a deeper sense and have greater respect for it. And this code of ethics is simply an extension of things I believe in and how I would act to a particular situation without breaking my core beliefs.

1. Personal
   1. **I will be honest in my words to the best of my knowledge unless it hurts someone else:** I will always speak the truth when talking to someone and will not lie unless it is deemed necessary. I wouldn’t consider lying if the truth would directly result in someone being harmed. I believe lying is acceptable if it results in a net positive result. For example, I would lie to protect my brother from my mom, but not from government.
   2. **I will live in the moment and plan the future based on events of the past unless the past events involve my mistakes:** I will enjoy the moment I live in and not worry too much about past events. However, I will use my experiences from past events to plan for my future. For example, if I fail an exam I will not worry about the failed exam itself but will rather analyze why I failed the exam and try to do better on my future exams. If the past event at question involves my mistakes, I will definitely worry about to analyze the consequences of my mistakes.
   3. **I will give my health the proper attention since individuals’ health is very important for the great good of the society:** I will take good care of my health and seek necessary help when needed. That is, I will not be hesitant to go to a doctor if something seems to be wrong. This would collectively help the greater good of the community since any infections would ideally be stopped early on in its stage. For example, I would definitely get tested for malaria if I ever visit any malaria-infected country, so that I can take necessary action without infecting others in the community.
2. Professional
   1. **I will hold true to my religious beliefs but at the same time will not allow them to interfere with my professional life:** Holding my religious beliefs is essential to my culture and to me. In my professional life, however, I will not let my religious beliefs intervene. For example, I will not let creation ideas of the religion intervene with scientific theories such as The Big Bang.
   2. **I will follow the set hierarchy in professional setting in order to raise any complaints or issue I have in that setting:** When I have complaints or issue regarding inner workings of a system that doesn’t directly affect the public, I will take steps to raise complaints to levels above me one after another, starting from my immediate supervisor. If the issue, however, directly affects the public I will expect the things to go a little faster, still following the hierarchy. In terms of whistleblowing, I wouldn’t consider it for an internal issue but would be my final option for issues that affects the general public.
   3. **I will neither alter any documents that I author nor encourage and support others to do so:** Any piece of a document I author will not be altered in any sense. This alteration includes introducing any piece of data to add strength to the point I would want to prove, removing of data to hide irrelevant information, but this would not include the specific analysis I perform to show how the data proves a point. For example, in a research setting, I will collect and analyze data points in a specific way but will not add points that I do not record, nor will I remove data points.
   4. **I will not harm any animal when an alternative to the purpose exists or when the result is uncertain:** Hurting an animal would be my last reserve for any purpose, whether it be my food or research. When I have vegetarian options for food, I will not rely on animals for my food. In terms of research, I would find other ways we can test a hypothesis, such as GWAS, and would only find animal research acceptable if it is necessary to further test the results. I wouldn’t find animal research acceptable when we do not have a certain outcome in mind. That is, I wouldn’t let people experiment with chemicals when there is an uncertainty with regards to the side effects.
   5. **I will be willing to perform any kind of research as long as it holds canon 2.4 and 3.1 true:** I will perform any research including but not limited to, animal research, and human subjects research as long as it holds canons 2.4 and 3.1 true. That is, the outcome is known or at least has a reasonable expectation and the selection process treats everyone equally. One other thing to keep in mind is that the experiment should be tested in lower order animals first before being implemented in higher order animals.
3. Societal
   1. **I will treat everyone equally when making individual decisions but in making decisions that affect the community as a whole this might be violated:** I will treat everyone equally and will not discriminate against sex, age or any differences between humans. Differences between humans, however, can be violated when a large group is under a direct threat. For example, if a nuclear attack on White House is inevitable, I would first protect secretaries and the President over tour guides and tourists.
   2. **I will help others with everything I have unless it requires breaking of my core beliefs:** I will help others in the society with what I have when needed. However, I might deny helping if the requiring help shows that I would have to break my core beliefs. This does include Organ Donation where I have already signed up to donate my organs upon death. For example, I will buy someone meat if they are hungry and want to eat meat, but will not help if they force me to eat it since I am a vegetarian.
   3. **I will respect other religions with the same respect I expect from others and give to my religion:** I have great respect for my religion and expect others to give a similar respect to it. In a similar way, I will respect others’ religion as well. I will also provide others to hold their beliefs true to them. For example, I will respect Islam despite the rising negative connotations to the religion and will respect others who believe in it.

**I will follow above canons with the highest priority unless a conflict arises and do my best to improve them over the course of my life:** In formulating these canons I have documented few of the most important items that I follow and would like to follow in future as well. This particular canon reinforces other canons and thus motivates me to follow all other canons with equal priority unless a conflict arises. In this case, the canon that is most appropriate to the situation would take higher priority. For example, in a professional setting canon, 2.1 would take higher priority over 3.3, meaning I wouldn’t follow canon 3.3 when another person following a different religion disregards Big Bang Theory due to his religious concerns. All members of the society, despite their religious beliefs, would need to agree to the scientific theories for future scientific progress.