My Ideal Internship: Analytic Consulting

What interests you most about the analytic consulting internship or fellowship opportunities we offer?

I am interested in this analytic consulting internship because it will provide me with the expertise and opportunity to contribute to the success of Kaiser's unique health care system that ultimately impact the lives of millions of Americans. Acquiring the skill sets in this internship will allow me to delve into my interest in databases as well as my passion in healthcare. I hope to use my analytical and technical skills one day to diagnose the issues at hand in our current healthcare system and improve on these issues in order for Kaiser to maintain the reputation of a world-class, integrated care facility. With the amount of accomplishments that the QOS division of the Permanente Group achieved, I have absolute confidence that I will learn from the best in the industry if given the opportunity.

What aspects of working in the health care industry excite you the most?

What excites me the most about working in the health care industry is the amount of innovations that can be achieved through the integration of information technology. Electronic health records such as KP HealthConnect had allow for an efficient system of gathering patient data for real time documentation, disease management, disease registries, and countless methods to improve patient care. In addition, IT can be exciting in the health care industry because from analyzing the data gathered through the use of IT systems, we can identify problem areas and implement a change that can improve the outcomes of many patients and ensure the quality of care is matched with cost effective pathways.

What is your level of experience with SAS, R, SQL or other programming languages?

My programming experience includes my enrollment in Stanford University's "Introduction to Database" online class taught by Professor Jennifer Widom. This particular course covers the concept and uses of relational databases, SQL, XML data, and JSON data and gives me great exposure to database design. I very much enjoyed learning about SQL and its advanced topics such as views, constraints, and triggers thus far. At the end of the course, I intend to be familiar MySQL and the main commands of SQL.

Describe two examples of analytical projects you have completed either through coursework or in a paid position

One particular analytic project that I completed was a 20-page research paper for a General Zoology course in college. In this paper, I examined the effects of temperature on the physiology of aquatic animals and consequently the effect of global climate change on the survival and well-being of these animals. One of the most important database tools that I used for this paper is FishBase, which provided a great amount of data on oxygen consumption rates of thousands of ectothermic fishes at varying temperatures. From the data, I discovered that at

high critical temperatures, there is less aerobic activity in aquatic animals as evidenced in its low oxygen consumption rate. Because of the increased climate change, elevated temperature in the ocean body can cause some aquatic animals to reach their critical temperatures and decrease their aerobic activity. This leads to a compromised circulatory and ventilator system that fails to meet the oxygen demand for physiological processes. As a result, climate change can in turn affect muscular activity, behavior, growth, and reproduction and thus affect the animal long-term.

Another analytic project that I was involved with was a blood pressure study at UCSF School of Dentistry. In this study, I collected blood pressures and heart rates of 45 dental students performing root canals to evaluate whether these factors changes significantly at varying stages of a stressful dental procedure, such as pre-treatment, after local anesthesia, after access preparation, and patient dismissal. After thorough statistical analysis of our data, our team discovered that the patient pulp status may affect the student dentist's cardiovascular response before and during the root canal procedure. Tooth pulp status includes irreversible pulpitis and necrosis. In addition, significant difference in anxiety levels was observed after local anesthesia and after access preparation.

Describe the most complex data set(s) you have had to work with and what you had to do to prepare the data for analysis

The most complex data set that I had to work with was the data collected from the blood pressure study at UCSF. In this study, I measure the blood pressure and pulse from 45 dental students at different stages of the dental procedure, which includes measurements pre-treatment, after local anesthesia, after access preparation, and after patient dismissal. These measurements are also subcategorized under the type of pulp status in which the pulp status of the patient is either irreversible or necrotic. In order to prepare the data for analysis, our team made an effort to develop and implement a recordkeeping system. This system involves recording the data in writing on a results form and subsequently entering the data in Microsoft Excel at the end of the day. This system successfully maintains a log of all our test subjects and measurements. We then reconcile any inconsistencies in our data such as unrecorded blood pressures or pulses by omitting the entire test subject if there are too many missing data or place the dataset aside for future remarks. We then document and specify all changes to the data and begin our analysis.

Describe your experience in creating data visuals and graphics, and in writing analysis summaries.

As a research assistant, I assisted in organizing and designing data tables and graphs presenting results on posters for display at research conferences. I also co-authored a manuscript detailing our experiments with tables and graphs coupled with figure legends analyzing data from the experiment. In addition, I have taken a Research Writing course at UC Davis, which requires me to write literature reviews and lay papers in a concise and thorough manner. For my literature reviews, I was expected to write summaries for recently published research papers and analyze each article to examine the recent trend in low birth rates of pregnant women with periodontal disease.

Describe why you think you have an aptitude for programming and analytic consulting work.

I believe I have an aptitude for programming and analytic consulting work because I have a strong desire to learn about programming and been practicing analytic work throughout my undergraduate career. I enjoyed linguistics and statistics and subsequently earned A's in those classes in high school and college. I believe the concepts acquired in those classes would enable me to be a better programmer. In addition, I am a problem solver and critical thinker as demonstrated in my research work at UCSF. I was able to collect and analyze data to make educated and sound judgments about the experiment and consult with the Principle Investigator about my findings.

Describe two projects in which you displayed excellent collaboration and communication.

As a study coordinator for the blood pressure study at UCSF, I often collaborated and consulted with researchers, research assistants, dentists, test subjects, and patients to effectively and efficiently organize all aspects of the study. I communicated with the research team via email, telephone, and in person to strategize our method and logistics in collecting data. Before we collect our data, I inform the dental student and the patient of their confidentiality rights and the purpose of our study.

Another project includes my yearlong commitment as the Public Relations Chairman for Spreading Smiles, a UC Davis organization that travels to Costa Rica to provide free dental cleanings and supplies to socioeconomically challenged communities. During this time, I collaborated with my co-chairman to organize fundraisers and publish our accomplishments in the local and university newspapers. I utilized my communication skills to present in oral hygiene workshops in Costa Rica and educated many locals about the benefits of everyday oral hygiene routines on the overall health of a person.

What does an ideal internship or fellowship program look like to you?

There are several qualities that I look for in my ideal internship. First would be the type of experience that the internship delivers. Because of my background in healthcare, I would like my ideal internship to show me a different perspective in healthcare. I also would like to experience first hand how database programming can influence the state of health care and be more inspired to make an impact. Another quality in an ideal internship is the potential for career and personal growth. Last but not least, an ideal internship should introduce a network of professionals that is eager to mentor and provide useful knowledge in the industry.