ENGINEERING AND ME: WHY I WANT TO BE A _________ENGINEER

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ASSIGNMENT OVERVIEW--
MY FUTURE: HYPOTHESIS AND VERIFICATION

For this assignment, you will investigate your current thoughts and assumptions about the particular field of engineering you are considering as your major. You will familiarize yourself with that field of engineering, you will assess your suitability for that field, and you will assess that field’s suitability (or unsuitability) for you. The research for this assignment requires that you consult sources—including “yourself” as a source—that will provide information about the field of engineering you are planning on pursuing. Note that one of the required sources is the Saturday, September 23, 2017 Swanson School First Year Engineering Careers Conference. You will begin Assignment #2 with a hypothesis, gather and analyze information from your various sources, and discuss the validity of your initial hypothesis, establishing why and how your potential chosen field of engineering is (or isn’t) a sound, logical match for the person you are and want to continue to be.

ASSIGNMENT DETAILS

Write a minimum 1600-word paper (not including References and Acknowledgments; you may go over this minimum word count) in which you advance a hypothesis regarding you and your chosen field of engineering, then validate (or “disprove”) the truth of the hypothesis. While you might not be 100% certain, at either the start or by the completion of writing this paper, about what engineering field you are most interested in, or why you and that field are a good match, you will use your research (including your ongoing research into “yourself”) to help you form a reasonable hypothesis. You will then use information from your sources (including yourself) to assess the validity of your hypothesis. You will move from a general statement: “I want to be a _______ engineer,” into further research and data-collection. Your research and your accrual of information will allow you to show, specifically, why and how your initial, general hypothesis “holds up” (or might not “hold up” or does not “hold up”).

You will organize your paper according to a scientific model of hypothesis, investigation, and conclusions. In your paper, you will posit a hypothesis (or you can think of it as proposing a theory); you will research and present specific details relevant to that hypothesis; and, drawing on those research details, you will state/assess the validity and significance of the original hypothesis. You will use the sections of your paper to present your hypothesis, research, and conclusions.

There is an I in “Iterate”

Any scientist pursuing a hypothesis will think and act “iteratively” as she defines and tests her hypothesis. As information is discovered, as possibilities are validated, as assumptions or previous ideas are called into question, a careful scientist moves back and forth among the steps of discovery and verification. For this process to be sound and for this process to produce substantial results, the scientist is always making sure to address important findings and to show how each aspect of research and testing affects all other aspects of research and testing. A good scientist will always specify how all aspects of research and testing contribute to a reasonable, responsible conclusion.

Your paper will reflect this iterative process, showing how elements of your hypothesis “react” as you discover and introduce variables and how each aspect of your process affects all aspects of your conclusions. In other words, as with all strong, cohesive written communication, you must clarify how all the elements of your paper interconnect. You must clearly explain how the information in one information area or section of your paper is important to the clarity and authority of the information in all sections. You must clearly explain how various “tests” lead to your particular conclusions.

RESEARCH REQUIREMENTS

The 2017 First-Year Engineering Careers Conference: A Required Source-- Ask Questions, Take Notes,

For this paper you are required to consult a minimum of 6 sources + your “personal research” (“personal research” is explained in subsection “You are a resource” later in this assignment). One of the required sources is the Saturday, September 23, 2017 First Year Engineering Careers Conference (FYCC). Be sure to take notes on what the keynote and “breakout” speakers are saying about how they came to be engineers and about various aspects of being practicing engineers in their fields. What are you learning, from the keynote speakers and from the engineer in a particular breakout session, that is relevant to your process of deciding what field of engineering you want to be a part of?

You should ask questions of the speakers; you should feel free to ask questions that are directly relevant to Writing Assignment #2. For example:
Your Name

- How and why did Mr. X decide to be a computer engineer? What did he do, throughout his education, to prepare him for a career in computer engineering?
- What does Dr. Y find most satisfying about her work? Is her work similar to what she imagined it would be when she was getting her education? What does Dr. Y find to be particularly challenging about her career and how does she address/meet those challenges?
- How did Mr. QR come to be an Engineer II at Z Corporation? What does a typical work day “look like” for Mr. QR? What aspects of Mr. QR’s personality and education make him an excellent engineer for Z Corporation?
- What does Ms. WZ do, as a civil engineer and Team Leader, on a day-to-day basis? How did her education prepare her for this work? What has been surprising to her about actually doing a civil engineer’s work on a day-to-day basis? Does she ever have to make decisions that involve ethical issues or dilemmas?
- What does Mr. RQ find to be the most satisfying aspect of his work? In 2008, when Mr. RQ was in his freshman year of engineering school, what did he imagine he would be doing, in his career, in 2017? Is he doing what he imagined he would be doing?

Further Required Sources

You must use the Occupational Outlook Handbook as one of your sources. Other sources (of your choosing) that you consult will provide substantial information on working conditions, salaries, job availability, etc. in the engineering field about which you are writing. Be sure to continue to consult the First-Year Engineering LibGuides, always available at http://pitt.libguides.com/freshmanengineering. Remember to use what you experienced and learned at the 2017 Engineering Careers Conference.

You are a Required Source

Assignment 2 requires that you “research” your own experiences, interests, achievements and aspirations. You will be familiar with using “yourself” as a source, because you already did this for Assignment 1! To facilitate the “personal” research for Assignment 2, you might ask yourself:
- What experiences (be specific!) in my childhood and beyond sparked my interest in engineering?
- What have I done in the past eight or ten years that might indicate ________ engineering is the field for me?
- What kinds of academic or other projects have I initiated, participated in, and/or completed that suggest, when I look back at them, that I would be good at being a ________ engineer?
- What experiences or projects have been so interesting and exciting to me that reviewing them leads me to believe that I would find ________ engineering to be a very satisfying career?

As you investigate your own motivations and goals, you should continue to ask yourself:
- What kinds of work do I want to spend my life doing, and why?
- What are my goals, as an engineer and a person, and how will becoming a ________ engineer help me to achieve those goals?

NOTE!!! You have already asked a version of some of these questions for Assignment 1. For Assignment #2, you will want to turn these questions towards why a particular field of engineering seems to be a good match for you. You might, however, want to use short passages of your own relevant, important information from your own paper from Assignment 1. You may quote or paraphrase your own writing from Assignment 1, but you must treat this information as source information, correctly citing (with you as the author) any quotations or paraphrases of your Assignment 1 material. Note that any quotations or paraphrases from your own writing in your own Assignment 1 do not “count” as one of your 6 required sources.

POSSIBLE SECTIONS

Introduction: __________ Engineering is (Hypothetically) the Field for Me

In this section you will present your hypothesis regarding the field of engineering that you think, at this point in time, you are most interested in pursuing. Along with your hypothesis, you will present details regarding why you believe this is a reasonable hypothesis at this time.

In your Introduction, be careful to present a clearly stated hypothesis and accompanying sufficiently specific details to demonstrate the overall reasoning that led to this hypothesis. In this section you might present statements such as: “I came to the University of Pittsburgh Swanson School of Engineering with the plan of majoring in civil engineering. I have always been interested in the construction of large structures, especially extremely tall urban skyscrapers. From what I knew about civil engineering, this field seemed to be the most likely career for participating in the design and construction of such structures. My research for this paper has reinforced my hypothesis that civil engineering is the field in which I can pursue my interests. A career in civil engineering, with a specialty in structural engineering, will allow me to make use of those mathematical and design skills that seem to be
Your Name

my forte, and I can earn the kind of money necessary for the kind of life I want to live. “

The next sections of your paper will then demonstrate, in detail, why civil engineering is, upon further research and analysis, a sound career choice and a sound life choice for you.

Who I am

For this section, you will engage in and report on “personal research.” You will access and present those details of your own past and current experiences that indicate why a particular field you’ve been thinking about pursuing is (or isn’t) the field you will actually pursue.

The research and details for this section will largely involve your own experiences, interests, achievements and aspirations. Consult the subsection “You are a Required Source” for the kinds of questions that will facilitate this personal research. Further very useful questions to ask yourself might be

• What kinds of working conditions, experienced on a day-to-day basis, appeal to me?
• Would I enjoy working closely with many different types of people in various locales?
• Would I prefer a job that involves working on projects by myself or with a small team in a familiar lab?
• Do I want to travel the world? Is it important to me to live near my extended family?
• Am I the kind of person who likes to be at the center of hectic activity or do I usually need ongoing peace and quiet to be productive?

In this section, then, you will research and present, in detail and with concrete examples/specifics, those interests, goals, characteristics, experiences, competencies, achievements that influenced and continue to influence your emerging decision to be a ___________ engineer. The information presented in this section will detail the more “personal” experiences and factors that reinforce (or refute) your initial hypothesis.

What Really Goes On in ___________ Engineering; How is What Really Goes on in ___________ Engineering Relevant to Me?

In this section (or these next sections), you will draw on your “library research” and your information from the 2017 FYCC to present specific, relevant details about the field of engineering that you hypothesize is a good career choice for you. Through your library research and Conference experience, you should be able to learn about the kinds of work ___________ engineers actually do; the salary range for ___________ engineers; the working conditions in the field of ___________ engineering; the job prospects for ___________ engineers; and the kinds of education/degrees usually required for a career in ___________ engineering.

These kinds of questions and accompanying research details should help you determine the validity of your original hypothesis:

• Do the details of ___________ engineering you have discovered in your library research and via the FYCC sound appealing to you? Why and in what ways?
• Do the details gathered and analyzed from your research indicate that you would be challenged in positive ways by a career in ___________ engineering? Why and in what ways?
• Are you interested in pursuing the kinds of education/degrees required for a career in ___________ engineering? Why?
• Do the customary working conditions or situations for a ___________ engineer seem appealing to you? Why?
• Are the kinds of companies or organizations that tend to employ ___________ engineers the kinds of companies or organizations you think you would like to work for (or create or manage or own)? Why?
• Does the kind of work often done by ___________ engineers match your goals for yourself and your vision of yourself as an adult in society? How and why?
• Do the details you’ve discovered through library and other sources and via the FYCC suggest a good match between ___________ engineering and the person in your “Who I Am” section? How and why?

As you present your research and FYCC findings, be sure to clearly articulate how these findings are relevant to the information in your “Who I Am” section. In other words, you must clearly and specifically articulate/explain the connections between (or the lack of connections between) the person in the “Who I Am” section and the actual working conditions, circumstances, and possibilities of ___________ engineering.

Conclusion: Yes, I Am (Going) Where I Should Be (Going)

In this section, you will revisit your introductory hypothesis and your ongoing iterative process, and you will assess, in detail, the validity of your hypothesis in light of the information you have gathered and analyzed. In this section, you will explain how and why the field you’ve researched does (or might not or clearly does not) suit you. You will explicitly show how, where, and why you see yourself fitting into (or not fitting into) that field; you will explicitly show how and why this field aligns with (or is out of alignment with) your life goals. You will briefly detail the steps you intend to take towards making a place for yourself in that field. To further clarify and reinforce your assessment of the validity of your hypothesis (and to provide an engaging, high-impact conclusion) you might provide a concretely detailed picture of yourself at work as a ___________ engineer sometime within the next ten years.
Your Name

FORMATTING

Your paper will look like this assignment—2 column format, with your title, section headings, spacing, etc. as they appear in this assignment. However, do not rely solely on this assignment document to do your formatting or to recheck your formatting. To make sure you are formatting correctly (and to effectively double-check your formatting), use the FALL 2017 PAPER FORMATTING SPECIFICATIONS FOR ASSIGNMENTS 2, 3, 4. There will be a 3-point deduction for each major format error, so give yourself enough time while drafting and completing your paper to make sure all formatting is correct.

CITING AND SOURCES

You will use the same citation system that you used for Assignment 1. Within the text, source material must be cited using a bracketed number. In-text citation numbers go in numerical order beginning with [1]. The first source material that appears in your paper will always be [1]. You then cite source information in ascending numerical order. The citation [2] within your paper will accompany information from your 2nd source.

In your Sources section, you will have a corresponding number for every bracketed in-text citation number. Your Sources section must be formatted according to the instructions in the FALL 2017 PAPER FORMATTING SPECIFICATIONS FOR ASSIGNMENTS 2, 3, 4, and the examples in the HOW TO ARRANGE “BIBLIOGRAPHIC INFORMATION” IN THE SOURCES SECTION document.

ADDITIONAL SOURCES

Present any additional sources that you consulted, but from which you have not quoted, paraphrased, or summarized material in an Additional Sources section. As explained in Assignment 1, Additional Sources are sources that were useful to you in some way as you researched/wrote your paper, but from which you have not quoted, paraphrased, summarized, or used pictures, charts, video clips, etc. Format these Additional Sources as you have formatted your Sources, except Additional Sources are listed in alphabetical order by author’s last name. NOTE: you might or might not have an Additional Sources section. You will need an Additional Sources section only if there were sources which were significantly important/helpful to you in writing your paper, but you did not want or need to actually use, quote, paraphrase, or summarize material from these sources.

ACKNOWLEDGMENTS

You must have an Acknowledgments section. In this section, you “acknowledge”—thank; show your appreciation for—individuals or groups (or other types of helpful resources) that assisted you in some particularly useful, important way. For example, if you had some serious discussions with your roommate about your paper, you might thank him or her. Or, for instance, if a friend helped motivate you to keep working on your paper, you might thank him or her. Perhaps a Pitt Tech Consultant helped you solve a complicated problem that was keeping you from saving your paper as you drafted it; you might thank that Consultant.