**LAS432**

**Team Project Guidelines**

**Objective**

This capstone course concludes with a research Team Project that starts during the first week and continues throughout the duration of the class. It culminates with the submission of a formal team report and an oral presentation by each team during Week 7, and Peer Reviews in Week 8.

Each team will identify and explore an emerging technology. This will be a technology that may already exist, but is drawing attention because of new applications, anticipated impacts or potential controversies. Examples could include:

* Nanotechnology in manufacturing,
* Genetically modified organisms,
* Remote/robotic surgery, or
* Wireless electricity.

The team will explore the technical, social, cultural, moral and ethical issues presented by the technology.

**Guidelines**

**Teams**

All teams will be assigned at the start of the first week. The first deliverable is due on the Sunday of Week 1, so students must get organized and into the project immediately. Each team will select a Team Leader, who will be responsible for the coordination of the research and the submission of assignments. Team members will remain on the assigned team throughout the duration of the class (in the project world, project managers seldom have the opportunity to select their own team members!). It is highly recommended that each team develop its own Team Contract to clearly define expectations, strategies, and timelines.

Emphasis is placed on both individual contributions and the final product of teams. You will communicate with your team through team meetings (online) and team discussion threads. Team members who fail to participate in an assignment will not get points for that assignment.

With those parts of the Team Project where a group grade will be assigned, all team members must submit a copy of the team’s work. When an assignment is completed, the Team Leader will distribute the finished product to all team members, and each team member must submit this copy to the Dropbox.

**The Task**

The primary focus of the team is to research and assess the issues associated with a specific emerging technology. The team will produce a formal research paper in APA format, with each team member contributing 10 pages of text. The paper will provide the basis for a 20-minute team presentation.

The following Required Elements must be researched and included in the final project. What follows is a list only, and is in no way an outline:

* A brief description of the technology and an explanation of the associated science
* The historical development and context of the technology
* Political and legal influences
* Economic questions and considerations
* Psychological considerations and sociological effects
* The technology in its cultural context, media influence
* Implications for the environment
* Moral and ethical implications

To properly analyze the various elements of the project, research will cut across disciplines and include academic, scientific and industry sources. Complete project guidelines and suggestions can be found in Doc Sharing.

**Deliverables**

All students submit the project individually, not just the Team Leader. With respect to graded group work the Team Leader must distribute the finished project to the team so that each member may submit it individually to the dropbox. With respect to individually graded segments of the project, each team member is responsible for compiling his/her own assignment and submitting it to the dropbox.

**Rubrics:** All rubrics for the Team Project can be found in Doc Sharing.

**Week 1: Research Topic and Outline (possible 50 points, group grade)**

Each team will select a topic for research and a Team Leader. Using the list of required elements for the project, each member of the team will take responsibility for researching specific aspects of the technology. The team will then produce a detailed outline for the project, noting each team member’s research sections. Please note, the list of required elements is just that – a list – and does not constitute an outline.

**Thesis Statement:**

Each outline assignment should begin with a thesis statement. This thesis sentence presents the central idea of the paper. It must always be a complete, grammatical sentence, specific and brief, which expresses the point of view you are taking towards the subject. (You will need to collaborate with your group on the perspective of the thesis.) This thesis statement will be included in the introduction of your final report and the opening of your presentation.

**Detailed Outline:**

In the outline, each heading and subheading is given in single words or brief phrases. To subdivide a heading into subheadings, there must be at least two subsections. Use numbers and letters to indicate the level of your headings, for example:

I. Description of the Technology

a. Science that drove the technology

b. Applications of the technology

II. History of the Technology

a. A brief timeline

b. An analysis of social factors that drove the technology

Be consistent with your choice of phrases, making sure they are grammatically parallel (where possible).

Each member of the team is to take responsibility for sections of this report. Indicate the assigned sections by placing the student’s name next to each section. When assigning the research try and match up personal strengths or interests. Once again, the required elements are:

• A brief description of the technology and an explanation of the associated science

• The historical development and context of the technology

• Political and legal influences

• Economic questions and considerations

• Psychological considerations and sociological effects

• The technology in its cultural context, media influence

• Implications for the environment

• Moral and ethical implications

The finished assignment should be 2 – 3 pages in length, not counting the title page. Although this assignment will result in a group grade, each person is required to submit a copy to the dropbox by the due date. The Team Leader will distribute the finished product to each team member, whereupon each team member will submit the same assignment to the dropbox.

**Making the Connections for Your Team Research Project**

If you have the following section, you might want to explore the connections that comprise that discipline:

**Pure Sciences:** How does this technology work? Try to avoid the “How Things Work” website as your resource for this portion of the paper. Instead cite real scientists and fundamental scientific laws (e.g. laws of gravitation, Boyle’s law, laws of thermodynamics, etc.) underpinning the technology. Cite technical manuals, using scientific explanations, but work to express the scientific concepts in lay terms. Use physics, chemistry, biosciences, mathematics, etc. Try to sound “nerdy” but clear. If you need to provide a glossary at the end of your paper, that’s okay.

**History:** Trace the major events along the path to where we are today with the technology. You have to include a timeline as part of your discussion or in the Appendix. You also have to discuss in detail the most recent developments while trying to give a macro perspective. What happened sequentially, chronologically, and what led to the innovations that we see today? Who were the major players? What issues presented themselves as obstacles, and what were opportunities that advanced the technology? What factors (economic, scientific, etc.) drove the technology. Tell us the story of how “blank” came to be.

**Political Causes/Effects:** Look at government policy, government intervention, government involvement (support or lack of support, funding), both nationally and internationally. Consider Congress, the President, the Supreme Court (decisions), the rate of change, liberalism, conservatism, legislation, litigation, etc. What political factors are at work in the progression or regression of the technology (e.g. lobbyists, special interest groups, partisan views, vocal advocates or spokespersons)? For example: The Americans with Disabilities Act was designed to prevent discrimination and encourage accessibility to public facilities; it impacted architects, companies, organizations and persons with disabilities through the installation of ramps (wider doors, lower knobs/handles, larger restroom stalls), the use of assistive devices in schools and in the workplace, hiring practices and lawsuits against employers, etc.

**Economic Issues:** Consider production, consumption, costs, variables of supply and demand, corporations, private enterprise, and impact on the nation’s economy (employment, displacement, and outsourcing). Are certain industries impacted more than others? Look up financial projections—expectations for growth, startup companies, the stock exchange, etc.—anything related to business and the U.S. and global economy. Who are the chief players in the business environment, and what is their role? How much has been invested in research and development? How will the price fluctuate? What economic trends are to be observed? Who will make money from the technology? Who is funding the research and development? Who controls the purse strings, and why? Look at foundations and charitable organizations, the outcomes and the nature of consumers. Be sure to use charts and tables and quantitative data in this section. Tables, figures, and data and statistics must be current, valid and used appropriately.

**Psychological Effects:** How has this technology been received, accepted, rejected? Why? Is it feared or favored? What is the attitude toward change? How are the developers trying to “sell” the technology to the general public? Look at attitudes, feelings (emotions), behaviors, personality, and the ways humans change as a result of this technology. What is being thought and why? Is the human mind impacted? How? Are interactions between people changing as a result? Who is included or excluded and why? Use Maslow’s hierarchy of needs, Piaget or some other theorist. What psychological needs are met by the technology (e.g., cell phones once granted status and now promote a sense of belonging or connectedness) or created by the technology? Consumerism?

**Sociological Effects:** Look at groups and organizations that have arisen and prospered because of this technology. Are these groups supportive or antagonist, and why? (An example is genetically modified foods [GMOs] and the backlash against the Monsanto Corporation. Another is cochlear implants which allow the deaf to hear, yet reduce the deaf population that calls itself a community.) How does the technology change society, or how does society change in response to the technology? What factors in society led to the development in the first place? What do class, gender roles, race, norms, etc. mean in this context? Who will benefit from the technology, and who might be harmed (this might also belong in ethics/morals section)? For example, prosthetics enable people to participate more fully and actively in society (some persons are competing in triathlons and marathons), and the “war” has brought about the need for advances in prosthetic technology as casualties with missing limbs return home to the United States. Look at the workplace, new companies and/or jobs created, jobs lost (or save this for economics?). Look at roles—subgroups, people’s interpersonal and intrapersonal relationships. Consider crime, healthcare, schools. Surveillance cameras, for example, have recently been installed in New York City, and the result has been a decrease in the amount of crime, purse-snatching, pickpocketing, etc. Yet some fear the “big brother” effect of always being watched and tracked and concerns over “Who will guard the guards?”

**Cultural Considerations:** This is a really important section. Consider the elements that comprise the culture and subcultures. Compare the United States use of the technology with that of other nations around the world. What is about Americans that brings about innovation, or has America declined in terms of technical innovation, scientific research and development? Look at advertising for the technology, the use of celebrities or stars or heroes, the applications (e.g. sports and nanotechnology) and the values represented by the culture. What has priority and why? An example: IBM was spelled out in xenon atoms. Why were these letters chosen instead of something else?

What new words have been added to our vocabulary from this technology? “Horseless carriage” was used long before the term “automobile.” “Wireless” preceded Wi-Fi, and webcasting preceded podcasting. “Broadcast” was a term adapted from agriculture long before it was used for radio and television.

**Artistic Links:** How do musicians and artists react to the technology or use the technology or incorporate the technology in their artistic productions? For example, fiber optic lighting has been used on the stage and in parades (Disney) for costuming. The drama term “In the limelight,” for example, was derived from a lens/lighting system used in lighthouses. Look at literature—perhaps science fiction or fantasy stories—that predate the technology (Jules Verne, for example, wrote about submarines before they were actually invented and used—though Leonardo da Vinci had sketched the idea centuries before Verne). Are there any songs, short stories, poems, plays, TV shows, or films that directly make reference to the technology? Are there any “related” literary works that apply? Is the artifact in a museum or will it be? Why? How does the technology relate to concepts of beauty and novelty and human creativity? How can people express their humanity through this technology? An example: scientists experimenting with nano made a “nano guitar” that actually played a tune, though it was subthreshold human hearing.

**Environmental Effects:** Consider such things as dangers to humans, the depletion of resources, air and water pollution, discovery before inventions, impact on wildlife and humans (health and safety), long-term and short-term effects, waste disposal, aesthetic considerations (how the technology changes the landscape). Look also at the positive effects (savings of raw materials or fossil fuels, low environmental impact, enhancement to the environment). For example, some thought the Alaskan Pipeline would impact the caribou population and its ability to migrate; the scientists discovered that the population actually increased and was healthier because they had “shade” from the above-the-ground pipe, fewer biting flies, and less physically stressed females.

**Other negative examples:** the spotted owl and deforestation in Washington State; the snail darter and the dam, endangered species and loss of habitats, extinction, over-mining, overproduction, pollution of ground water, landfills, toxic wastes, stripping the soil of nutrients, over fishing, over hunting, over harvesting.

**Moral and Ethical Considerations:** Consider quality of life, human rights, codes of ethics, privacy, accountability, corporate responsibility government responsibility, individual responsibility (e.g., ways of dying and rights of dying). What ethical values are expressed implicitly or explicitly by this technology? Pride (being the first-to-get-to-the moon kind of thing)? Greed? Power? Fraud? Theft? Deception? Lies? Whose rights are violated? Whose rights are honored? Consumer rights? The rights of the general public? Freedom? Authority? Control? What are the major moral concerns associated with the creation and adoption of this technology? Remember the e-Waste example in the reading I gave you—the disposal of dangerous toxins in “poorer” countries, the not-in-my-backyard phenomenon. What do religious groups have to say (this group thing may fit better in the sociology section)? For example, contraceptives generally prevent pregnancy but for some this technology violates what they call “natural law” and their religious belief in God’s command to “be fruitful and multiply.” Look at corporate code of ethics, professional codes of ethics (IEEE, etc.) available through websites such as Illinois Institute of Technology’s and Case Western Reserve University’s (compilation) or ethicsonline.org. Look at the companies developing the technology and check out their “codes of ethics” to determine whether the technology they are developing is in keeping with their mission and values. Who is responsible if something goes wrong or if critical information is withheld from the public? Example: asbestos and cigarettes.

Apply ethical theory on your own—utilitarianism, act utilitarianism, rule utilitarianism, Kant’s categorical imperative, ethic of care, deontology, teleology, ethical egoism, absolutism, Fletcher’s situation ethics, ethical relativism, etc. Consider an encyclopedia of ethics for terms and applicable concepts. Check out the reading in our textbook on morality and technology.

**Week 2: Resource Review (90 possible points, individual grade)**

Each member of the team will assemble at least 5 scholarly, academic references that will be used to write the paper (refer to Week 1’s tutorial on Scholarly References). Each student will list his/her references using APA format, and provide a brief explanation of each resource indicating how that resource will be used. The focus should be upon the student’s specific research assignment. An approximate length of this bibliography is between 2 - 3 pages.

**An example reference:**

Brenner, Joel (2011). *America the Vulnerable: Inside the New Threat Matrix of Digital Espionage, Crime, and Warfare*. New York: The Penguin Press

In my section of the report, I will be researching security issues associated with collaborative online tools. Brenner’s book explores the events surrounding the WikiLeaks scandal and the issues associated with security. He also examines the legal challenges that the incident presented. This material could be used by my team in another section of the report. He makes some recommendations that we will consider for our conclusion.

General reference works such as encyclopedias, dictionaries, wikipedia, howstuffworks.com will not be considered as sources meeting this requirement. The list could include books, journal articles, industry reports, authoritative web sites, manufacturers’ sites or sites from research groups. Remember, all quotations, paraphrased material, images, graphics and statistics must be referenced in your report, so make note of all sources while compiling your research!

**Textbook Readings:**

It is expected that students will bring into their report concepts and ideas from their weekly assigned textbook readings. Part of your grade is determined by your ability to synthesize these concepts with your other research. Consequently, these authors must be properly cited and the articles included in your final bibliography.

Each student will submit his/her assignment to the dropbox by the due date, and provide a copy to the Team Leader.

**Week 6: Submit Rough Draft to TurnItIn (no points, but required)**

* Submit individual rough draft portions to TurnItIn via WK 6 dropbox (no points, but required).
* Each team member will submit their individual sections to Turnitin this week, leaving enough time for team corrections. This is mandatory, and no paper section will be accepted into the final draft without having been submitted first to Turnitin. This process will take place exclusively through uploading their paper portion to the WK 6 Rough Draft dropbox, which is linked to Turnitin. Students will not be visiting or utilizing the Turnitin website directly. Following submission, the review information provided by Turnitin will be found within each student’s WK 6 Outbox. Turnitin will only be utilized for this student draft review - the final Team Project papers will not go through this process.

**Week 7: Final Draft of the Paper (200 possible points, individual grade)**

All written sections will be compiled into one, cohesive team paper. All students should review the paper to ensure that the transitions are smooth, that the sections fit together, and that the bibliographies are compiled correctly.

The paper should conclude with recommendations for further research or possible solutions that could be evaluated. A complete list of references, in APA format, should follow along with any Appendices.

* Title Page (not included in page count)
* Table of Contents – indicating student sections (not included in page count)
* Abstract - 200-word summary of the entire paper; it is not a restatement of the introduction (not included in page count)
* Report
  + Introduction that provides background information, establishes the context and significance of the issues and the technology (your thesis statement) and generally orients your reader to the entire project. It should outline the scope of the investigation, and comment on any challenges the team faced with respect to research sources.
  + Report sections, organized using at least level-1 and level-2 headings.
  + Proper documentation throughout the report using APA style. **(Each member is responsible for documenting properly, and undocumented or poorly cited material will count as plagiarism—a failing grade for the paper.)**
  + Appropriate visuals/graphic aids in the document that are discussed in the body of the report and support the thesis (e.g., a table, graph, chart, illustration, photograph, diagram, map, etc.); mathematical or statistical data is appropriately used to support conclusions. **All visuals/graphic aids also need to be properly documented.**
  + Conclusion that effectively synthesizes the sections of the report. It should summarize key issues. Included in this section should be Recommendations for Further Research, following up on any questions that were uncovered during your research or suggestions for groups/events to follow.
* Bibliography and appendix (not included in the page count but significant in showing you “found” relevant stuff that would not fit into the body of the text—brochures, charts, handouts, samples of materials or products, or team process reports, etc.). Wise groups begin the bibliography early and start gathering related materials for the Appendix.

All teams must plan to leave enough time for peer review, to check transitions and write an effective conclusion.

Remember, final papers must be submitted to TurnItIn before submitting to the dropbox. Papers that have not been submitted to TurnItIn will not be accepted.

Although this assignment will result in one cohesive team paper, each person is required to submit a copy to the dropbox by the due date. The Team Leader will distribute the finished product to each team member, whereupon each team member will submit the same assignment to the dropbox.

**Team Oral Presentations (150 possible points, group grade)**

Each team will conduct a live team presentation with all classmates present. Students are required to attend the entire presentation session, which should last approximately 2 hours. Online students will use a Web Conferencing tool, and must have their own computer microphones.

Important note about attendance: This presentation is worth 150 points, and if you fail to attend, you will not receive credit for the presentation. Exceptions to this policy will be made only for the following unique emergency situations:

* In the event that the area in which a student resides experiences an extended power outage due to a natural disaster (hurricane, flood, storm, etc.)
* A student is on active military duty and cannot complete coursework
* A student has a verifiable (documented) medical or other personal emergency

Each presentation should begin with an introduction of the team members, then move to a discussion of each of the elements of the team assignment using Power Point slides.

The presentation is NOT simply a regurgitation of the written report. Students should NOT read from the written report. The focus should be on a presentation of the issues. Avoid generalized statements and unsubstantiated claims. If “some people believe that this technology will….”, tell us who they are! If “experts believe that this will result in an increase of….” - be specific! Give us the data and tell us who these experts are.

All direct quotes, statistics, and visuals/graphic aids need to be properly documented. Make sure to note the source on you PowerPoint slide.

After the slides are presented and the sections have been discussed, the team members are to ask the class 2- 3 questions about their technology that will promote discussion among the other class members. The presentation should end with recommendations for further research or assessments pertaining to the technology. Presentations should be 20 – 25 minutes in length.

Evaluations of other teams: students are expected to evaluate one other team presentation and complete a Peer Evaluation form for submission. Know which team you are to evaluate and take notes during the presentation so that these forms can be appropriately completed.

**Week 8: Peer Review (30 possible points, individual grade)**

Students will find a Peer Evaluation form in Doc Sharing. Each student is required to fully complete the evaluation of one other team’s presentation. The team to be evaluated should be clearly identified, and all questions should be answered using full sentences with correct spelling and grammar. Assessments should be respectful and professional in nature. Each student will submit this assignment to the dropbox by the assigned due date.