**Managing Digital Business - 95-734 (Section Z)**
Carnegie Mellon University
Master of Information Systems Management Program

**Instructor:**
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Office Hours: 30 Minutes following live class sessions

**Teaching Assistants:**
TBD

**Course Administrators:**
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**Course Information:**
Class Time: See the course schedule at the end of the syllabus
Virtual Classroom hosted on Canvas (asynch) and Zoom (synch)

**Course Prerequisites:**
Students should have taken courses that cover both information technology (Core IT Design/Development/Management/Analytics, etc.) and business/managerial topics (Financial management, business analytics, economic analysis, etc.). Students are highly recommended to come from a CS/IS/IT background.

**Course Description:**

The information age is continually transforming human interactions through an ever-changing landscape of trending social and economic decision making. Information technology managers, directors, and CIO/CTO's, once looked upon as the enablers of integrating and maintaining the efficiency of business technologies, are now being utilized as more of the driving force behind creating and sustaining competitive advantage over company rivals through technological innovations and implementations. Commerce has metamorphosed and is continually being transformed by these deviations to the norm, leading to new markets and potential business opportunities.

To realize success in making critical business decisions, the IT leader must have a grounded understanding of the technology in use, potentials for new technology, and the ability to strategize and understand the impacts of incorporating technology in the business or industry they serve, both nationally and globally. Likewise, the IT leader must also show precise focus to the application of establishing a systematic path that encourages interactions between digital and physical markets.

In this class, the focal point will hone in on two main areas: managing the business side of the entity including its people and processes through established theoretical frameworks, and managing the technical roles, innovations and implications for the digital business. From a business context, the course will focus on digital business models including internet retail (eCommerce marketplaces, subscription services, curated commerce, brick & mortar establishments entering into fully autonomous commerce, how big data improves marketing potential, showrooming, etc.), requirements elicitation for understanding and establishing the needs of stakeholders both internal (employees) and external (consumers, suppliers, etc.), understanding the roles of fulfillment in the current business environment, the difference between SCM and ERP systems to determine advantages and disadvantages of each as well as market development impacts, and understanding the workings of B2B and P2P markets. From a technical context, this course will focus on current and emerging immersive technologies such as IoT, ePayment, IA, Blockchain, Cloud-enabled tech (Meta/Spatial Computing) & Quantum Computing.

Additionally, this course will examine IT related changes in the current marketspace through the growth of internet and mobile commerce, social networking effects on markets, Web 2.0 (and transitions into 3 and 4.0) including recommender systems and user generated/created content (UGC/UCC) and understanding the differences and nuances of digital products and services. Promoting an emphasis of the potential and proper implementation of these innovations through analysis, strategy and design, and additionally the impacts of these innovations on the organization will leverage a successful framework for maturing the digital business.

The project analyses will require students to engage in both technical and managerial problem solving. The technical component of the analysis requires students to propose IT architectures for the problems highlighted in the project. The managerial component of the analysis requires students to analyze the business value of the proposed solution and address the change management issues that arise in implementing any digital transformation initiative.

**High-Level Learning Objectives and Outcomes:**

Skills and knowledge the students are to gain and how they will be assessed include:

-Interpret, analyze, and apply technical and managerial components of emergent technologies including digital business modeling, Internet of Things, ePayment technologies, robotic process automation, blockchain technologies, and cloud and quantum computing drivers.

-Identify and examine key technological challenges and rewards from systems innovations, first-mover advantages and disadvantages, and the potential disruptions or opportunities to culture, cross-industry collaborations, design thinking, and trust.

-Examine current and future trends surrounding the digitization of everything across sample industries, businesses, and applicable contexts.

-Understand and adapt to the changing landscapes of economics from traditional physical to evolving digital channels.

**Reading Materials:**

Supplemental readings are available on Canvas or will be distributed in class. There is no textbook requirement.

A "digital" reading packet containing cases and readings pertaining to lectures and assignments will be posted during the sequence of the course and may or may not contain cases requiring purchasing from HBP.

**Attendance Policy:**

Students are expected to attend all scheduled mandatory class times. As most classes involve team-based work including live presentations, it is imperative that students are a part of each discussion. Any meeting not deemed as mandatory are optional attendance.

**Cheating, Plagiarism, and Academic Integrity:**

Students at CMU are engaged in preparation for professional activity of the highest standards. Each profession constrains its members with both ethical responsibilities and disciplinary limits. To assure the validity of the learning experience Carnegie Mellon establishes clear standards for student work. You are required to be familiar with all university policies on this subject (see https://www.cmu.edu/policies/student-and-student-life/academic-integrity.html). An extract of these policies is reproduced here:

> In any presentation, creative, artistic, or research, it is the ethical responsibility of each student to identify the conceptual sources of the work submitted. Failure to do so is dishonest and is the basis for a charge of cheating or plagiarism, which is subject to disciplinary action.
>
> Cheating includes but is not necessarily limited to:
>
> - Plagiarism, explained below.
> - Submission of work that is not the student's own for papers, assignments or exams.
> - Submission or use of falsified data.
> - Theft of or unauthorized access to an exam or quiz.
> - Use of an alternate, stand-in or proxy during an examination.
> - Use of unauthorized material including textbooks, notes or computer programs in the preparation of an assignment or during an examination.
> - Supplying or communicating in any way unauthorized information to another student for the preparation of an assignment or during an examination.
> - Collaboration in the preparation of an assignment. Unless specifically permitted or required by the instructor, collaboration will usually be viewed by the university as cheating. Each student, therefore, is responsible for understanding

the policies of the department offering any course as they refer to the amount of help and collaboration permitted in preparation of assignments.
- Submission of the same work for credit in two courses without obtaining the permission of the instructors beforehand.

Plagiarism includes, but is not limited to, failure to indicate the source with quotation marks or footnotes where appropriate if any of the following are reproduced in the work submitted by a student:

- A phrase, written or musical.
- A graphic element.
- A proof.
- Specific language.
- An idea derived from the work, published or unpublished, of another person.

Regarding plagiarism, you should also familiarize yourself with the content of the separate handout entitled "A Note on Plagiarism and Citing Sources."

*One application of this plagiarism policy for our class is that you may <u>not</u> provide or receive information on project write-ups or class discussions from students outside of your section. This includes both students from prior semesters and students from other sections in this semester.*

**A Note Regarding Case "Solutions" on the Web:**

There is a potential for the course to use predesigned cases to help guide the learning process. Because these cases are used at a variety of schools, there may be slides and other materials available for them on the web. I am asking you not to use these materials for the following reasons:

1. Presumably you are here to learn how to best design, implement, and manage corporate IT systems. The best way to do that is to struggle with these issues yourself and with your teammates and classmates. Anything less and you are wasting your time and money as a student and short-changing your long-term growth as an IT professional. Making (and learning from) mistakes today is a very low-cost way to improve your skills. Once you hit the corporate world, the mistakes become very costly.

2. Case analysis is not like algebra where there is an answer that the grader is looking for. These cases are typically written with multiple possible recommendations. Don't assume that just because someone in some business school says you should do X, that X is the "correct" way (or even a good way) to approach a case.

3. You run the risk that others in the class will come across the same materials, make the same recommendation as you (possibly using very similar words) — which raises huge red flags regarding plagiarism.

4. It damages our classroom discussion. If everyone gives the same recommendation, we don't

have the opportunity to fully explore other options — and exploring and learning from other options is part of the joy and excitement of case work.

5. It makes you subservient to the recommendations of others — who may or may not know anything about the underlying technology, IT project management, etc. One of the premises of the MISM/MSIT program is that people with a strong IT background will be able to do a better job managing IT projects than others who don't have a tech background. I'm assuming that's why you are here and not somewhere else.

So, for the sake of your professional development, our classroom discussion, your academic integrity, and your pride in your degree program, using someone else's case "solutions" is a bad idea. However, if you insist on using these resources, you must cite your sources in the body of your report and on your slides, whether you use direct quotes from them or not. You are, of course, perfectly free (and encouraged) to research any of the companies or issues that we discuss in class. I am just asking that you not use outside discussions of the cases themselves.

***Use of Generative AI (ChatGPT)***

I expect you will use AI (e.g., ChatGPT and image generation tools) in this class. In fact, some assignments require it. Learning to use AI is an emerging skill and to get started, I have provided three tutorials below:

- How to use ChatGPT to boost your writing
- The practical guide to using AI to do stuff
- APA citation guidelines for GAI (ChatGPT example)

You should also be aware of the limits of ChatGPT:

- **If you provide minimum-effort prompts, you will get low-quality results.** You will need to refine your prompts in order to get good outcomes. This will take work.

- **Don't trust everything it says.** If it gives you a number or fact, assume it's wrong unless you either know the answer or can check with another source. You will be responsible for any errors or omissions provided by the tool. It works best for topics you understand.

- **AI is a tool, but one that you need to acknowledge using**. Please include a paragraph at the end of any assignment that uses AI explaining what you used the AI for and what prompts you used to get the results. Failure to do so can constitute as an academic integrity violation.

- **Be thoughtful about when this tool is useful.** Don't use it if it isn't appropriate for the case or circumstance.

Resources we may use to validate work against generative AI (and that you can use) include:

https://aiwritingcheck.org/

https://www.turnitin.com/ (built into Canvas)
https://github.com/jwkirchenbauer/lm-watermarking
https://gptzero.me/

Some CMU strategies being employed include:
https://www.cmu.edu/teaching/technology/aitools/index.html

You may use generative AI for the following work:

- Group & individual assignments

You may NOT use generative AI for the following work:

- Surveys & the final exam

I am happy to meet and help you with these tools during office hours or after class.

**Course Web Site: http://canvas.cmu.edu**

We will use the Canvas site for course information and announcements. If you are registered in the class, you should already have access. Your login id is your andrew id and password.

If you are on the wait list, you should still be able to access the site with your Andrew login (apart from the student's resources section). If this does not work, please e-mail any of us to obtain temporary access.

The web site has an up-to-date copy of the syllabus, schedule, pertinent documentation, A/V, and any class announcements. While I will try to make announcements both in class and on the web site, it is a good idea for you to check the web site regularly. Additionally, the web site has links to class readings and relevant sites mentioned in class and more extensive background material.

**Grading and Course Requirements:**

You will be evaluated based on your project analyses, participation in discussions, project presentations, and an individual final assessment handed out at the end of the mini. Your project analyses will be graded as group work. Your grades for the final assessment and discussion forum participation will be your own.

The final grade for the course is distributed among various assignments and activities posted below. Canvas should only be used to track individual grades, not cumulative. The grading system on Canvas does not accurately track the grading scheme used in this class. Please follow up with the TA and/or myself for grading questions. The breakdown for your work is as follows:

| Consultant Tasks: | Total # of Tasks | Earning Potential |
|---|---|---|
| (Profile + E0) + Surveys | 5 | 60.00 |
| Individual Contributions | 3*4 | 240.00 |
| Written\Presented Projects | 4 | 500.00 |

| | | |
|---|---|---|
| Final Assessment | 1 | 200.00 |
| | | |
| | 18 | 1,000.00 |

Profile + E0 + Surveys: To start the course we will introduce ourselves and part of this will require completion of Exercise 0 that is detailed in the introduction. Throughout the duration of the course you will be tasked with completing assigned surveys which are autograded

Individual Contributions: Consists of three metrics:

1. Peer Review: Since the projects analyses and position papers are group work, I will use a peer review instrument to ensure that feedback from group members about team member contributions are considered in the determination of the final grade. 50% of the peer evaluation is dependent on your timely and well-documented submission, with the other 50% dependent on the scoring from your peers.
2. Individual Team Presentation Evaluation: Non-presenting teams are asked to fill out a ranking survey and provide constructive comments for the two team presentations reviewed.
3. Class Participation: This metric includes attending all required classes and providing at least 1 comment and/or question during the live class, or after in the canvas discussion area.

Project Analysis: You project analysis grade is based on a write-up (1 to 1.5-spacing, 12-point Time New Roman font, 1-inch margins, and no more than 20 pages total (including cover, summary, appendices, etc.) or a 20-minute presentation (PDF or PPT, 20 minutes maximum). See the course schedule for due dates.

I will assign groups to either write their analysis or present their recommendations to class.

Your write-up and presentation should address the issues raised in the project narrative and associated discussion questions. However, you are encouraged to go beyond the set of questions that I give you to seed the discussion and to use additional resources to research the background of the industries and correlated emergent technologies as you see fit. Project analysis documents are group work and should adopt, but not be limited to the following perspectives:

a. What are the business/strategic drivers of process digitization in the particular business and industry environments, coupled with the digital component being analyzed?

b. What is the role of IT architecture in either enabling or inhibiting process digitization? How can the proposed emergent technology enhance or inhibit growth?

c. Given your knowledge of technologies to date, do you agree with the choice of technologies for IT and/or for process change in the proposed areas?

d. Did the project describe the organizational challenges encountered in process digitization? How do you suggest handling the organizational challenges? If the project did not describe organizational challenges, what do anticipate them to be and what are

your recommendations for overcoming them?

e. What are the alternatives to the proposed technology and would you consider an incumbent alternative over an emergent technology?

Detailed learning objectives and outcomes are provided for each section of the course in the "Guide Sheet" document provided. Use these coupled with the above perspectives as a driver for what to address in your solutions.

The format for the project write-up is contained in a handout that will be provided in class. For the presentations, you should target 20 minutes of presentation time, but with enough backup slides/information to answer any questions that might arise about your recommendations in a Q&A session following the presentation.

*Project Grading Rubric:*

**Analysis (60%)** - understanding of the case and the issues highlighted, and solid reasoning for your argument/recommendation based on the research questions presented. Addresses all Q&A clearly with grounded information (real-time and on Canvas).

| **LEVEL OF PROFICIENCY** | **Exemplary (9.8-10)** | **Accomplished (8-9.7)** | **Developing (5-7)** | **Needs work (0-4.9)** |
|---|---|---|---|---|
| **Problem Scoping** | Clearly defines the problem, its boundaries and the project's scope. | Defines the problem, with an understanding of its boundaries and the project's scope. | Sometimes makes contributions to defining the project's scope, but ideas are vague. | Does not make contributions to define the project's scope. |
| **Problem Solving** | Reviews multiple approaches for solving the problem that identifies a grounded approach within the specific context. | Identifies multiple approaches for solving the problem, only some of which apply within a specific context. | Identifies only a single approach without other considerations for solving the problem but that applies within the specific context. | Identifies one or more approaches to solving the problem but that do not apply within the specific context. |
| **Technology and Managerial Implementation (strength, testing, evaluation, quality)** | Clear knowledge and know-how to research and implement appropriate technologies for the project. This could include areas out of scope that add value and were approved.<br><br>Business and technological decisions are synergistic. | Some knowledge and understanding of the technology to incorporate within the project are displayed. Technical needs are mostly met to provide adequate project delivery and a solution to the problem area identified by the case problem.<br><br>Business and/or technical decisions may show some minor lack of cohesiveness. | Vague incorporations or directions of technical research and implementations. Technical needs are still in development but show signs of creating a solution to the client problem but may not be met within the project.<br><br>Business and/or technical decisions may show major lack of cohesiveness. | No knowledge or understanding of the technology to be incorporated within the project, technical needs are not met, or do not work.<br><br>No cohesiveness between business and technical constraints. |
| **Generates valid conclusions/decisions and considers the audience** | Recommended solution is based on stated criteria, analysis and constraints and considers other options. Case | Solution/decision is reasonable; further analysis of some of the alternatives or constraints defer different recommendations. Case | Solution/decision is reasonable; further analysis of some of the alternatives or constraints may have led | Only one solution is considered, or other solutions were ignored or incompletely analyzed. Many constraints and criteria were ignored. Case analysis shows |

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| | expectations are fully met or exceeded. Considers not only current but future scope. | expectations are mostly met. | to different recommendations. Case expectations are somewhat met. | poor project outcomes. |

**Content (30%)** - based on the use of assigned readings, other resources, and supporting examples.

| LEVEL OF PROFICIENCY | Exemplary (9.8-10) | Accomplished (8-9.7) | Developing (5-7) | Needs work (0-4.9) |
|---|---|---|---|---|
| **Identifies relevant & valid sources of information to support decision-making through research** | All relevant information is obtained, and information sources are valid and accurate.<br><br>Solutions are well supported by a deep and logical connection between research and conceptualizations.<br><br>Alternatives exploring different facets of use are considered and are appropriately analyzed for feasibility.<br><br>Identifies appropriate data for analysis and exceeds findings in an optimal methodology to address the problem.<br><br>Sketches, prototypes, graphs and/or scenarios are used to bring opportunity areas to life. | Sufficient information is obtained, and most sources are valid.<br><br>Solutions are mostly supported by the information gathered that create a connection between research and concept.<br><br>Alternatives are considered but are not fully vetted.<br><br>Identifies appropriate data for analysis and a methodology for addressing the problem.<br><br>Sketches, prototypes, graphs and/or scenarios are sometimes used or may be slightly inconsistent. | Some relevant information is obtained but information sources are not always valid and accurate.<br><br>Solutions are not well supported by the information gathered and doesn't show a connection between research and concept.<br><br>Alternatives exploring different facets of use are rarely considered or are not appropriately analyzed for feasibility<br><br>Attempts to identify data for analysis but may not understand or have an optimal methodology to solve the problem.<br><br>Sketches, prototypes, graphs and/or scenarios are used but need a lot of explanation to bring opportunity areas to life or struggle to make the connection. | Insufficient information is obtained and/or sources lack validity and reliability.<br><br>Solutions have no support by the evidence and nothing to show that the information gathered creates a connection between the research and concept.<br><br>Alternatives are not considered or are not valid.<br><br>Does not identify appropriate data for analysis.<br><br>Sketches, prototypes, graphs and/or scenarios are not used and/or do not bring opportunity areas to life or only cause confusion. |

**Presentation (10%)** - clear structure and organization of the case write-up/presentation, following the format requirements, and staying within the page/time limit.

| LEVEL OF PROFICIENCY | Exemplary (9.8-10) | Accomplished (8-9.7) | Developing (5-7) | Needs work (0-4.9) |
|---|---|---|---|---|
| **Client Skills** | Class interactions are professional and productive, eliminates jargon and explains ideas well.<br><br>Demonstrates a high level of comfort and connection with the audience. Speakers respond accurately and appropriately to audience questions and comments. | Class interactions are mostly professional and productive. Few miscommunications and disconnects with some jargon that may interfere with explanation of ideas. Demonstrates a decent level of comfort with the audience. Speakers respond to most questions accurately and appropriately but may be slow | Class interactions are somewhat professional and productive. More miscommunications and disconnects with some jargon that may interfere with explanation of ideas.<br><br>Demonstrates a slight discomfort with the audience. Speakers respond to questions less accurately and appropriately, and/or | Class interactions are unprofessional and/or unproductive. Multiple miscommunications and disconnects, and full for jargon and misunderstandings of ideas.<br><br>High degree of discomfort interacting with the audience. Speakers have difficulty responding clearly and accurately to audience |

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| | | | respond slowly. | questions or never responds. |
| **Presentation Skills (visual, oral, written documentation) for telling the story** | Slides are error-free and logically present the main components of the process and recommendations.<br><br>Material is completely legible, and the graphics highlight and support all of the main ideas. Sentences are grammatical with no spelling errors present.<br><br>Speakers are audible and fluent on their topic, and do not rely on notes to present or respond.<br><br>Is an effective summary of the team's efforts and works visually and considers all audiences.<br><br>Does not run over allotted time but stays within the ideal range (Within 1-2 minutes) or allotted page length.<br><br>Report is well organized and clearly written. The underlying logic is clearly articulated and easy to follow. Diagrams or analyses enhance and clarify presentation of ideas. Sentences are grammatical and free from spelling errors. | Slides are mostly error-free and logically present the main components of the process and recommendations.<br><br>Material is completely readable with some slight effort, and graphics reiterate most the main ideas. Sentences are grammatical with minimal spelling errors present that do not hinder the reader.<br><br>Speakers are mostly audible and fluent on their topic and require minimal referral to notes.<br><br>Is an effective summary of the team's efforts and is visually appealing and understandable for the audience.<br><br>May slightly run over time or ends prematurely (2-4 minutes) or is over/under page length.<br><br>Report is organized and clearly written. In all areas the logic or flow of ideas is clear to follow. Diagrams are consistent with the text. | Slides are not completely error-free and/or logically presenting the main components of the process and recommendations.<br><br>Material is readable with some challenges, and graphics somewhat reiterate the main ideas. Sentences are seeing grammatical errors with more spelling errors present that start to hinder the reader.<br><br>Speakers are somewhat audible and fluent on their topic and require continual referral to notes or read directly from slides.<br><br>Is a slightly less effective summary of the team's efforts and is less visually appealing and understandable for the audience.<br><br>May run over time (over 2 minutes) or ends prematurely (4-5 minutes), or grossly over or under page length.<br><br>Report is organized and clearly written for the most part. In some areas the logic or flow of ideas is difficult to follow. Diagrams are somewhat consistent with the text. | Slides contain errors and lack a logical progression. Major aspects of the analysis or recommendations are absent. Diagrams or graphics are absent or confuse the audience.<br><br>Sentences are seeing many grammatical errors with many spelling errors present that completely hinder the reader.<br><br>Speakers are often inaudible or hesitant, often speaking in incomplete sentences. Speakers rely heavily on notes.<br><br>Is not an effective summary and does not work visually.<br><br>The full audience is not considered.<br><br>Time is well under or over allotted time (5+ minutes) or is extremely over or under page length.<br><br>Report lacks an overall organization. Reader has to make considerable effort to understand the underlying logic and flow of ideas. Diagrams are absent or inconsistent with the text. |

Final Assessment: There will be a take home final assessment handed out in the last weeks of class & is due finals week. The assessment will ask you to integrate information we have learned across the projects, required readings and lectures we've covered in the semester.

**A Note on Regrade Requests:**

We make every effort to return graded assignments within 1 week of their submission. If you believe that your grade is inaccurate, you may request a regrade under the following conditions:

1. Regrade requests must be submitted within 1-week of the date when a grade was returned

2. Regrade requests must be in writing and must include a copy of the original assignment.

3. Regrade requests must outline the reasons you deserve a higher grade. These will typically be that the grader misread or misunderstood your answer or didn't take something into account that they should have. For this, you should use the written comments on the assignment as your reference point. Referencing another student's grade is inappropriate and irrelevant. While we do our best to apply an even standard across students, we can't discuss anyone else's grade with you, so we need to deal with the merits of your case.

4. I reserve the right to regrade the entire assignment and thus your grade may go up, down, or stay the same. This regrade is considered final.

5. Class participation grades are inherently subjective and not subject to a regrade request. I will make notes on participation at the end of each class and assign grades at the end of the semester based on these notes.

**Late Submission Policy:**

All late assignments are subject to a grade penalty of 10% per day past the due date/time, with a maximum of 4 days. Anything not submitted within 4 days past the due date will receive an automatic 0. Teams and individual submissions are subject to the same policy. Any issue with meeting a deadline must be cleared through the instructor and/or TA prior to the submission date/time or will be subject to the penalty.

**Student Health and Wellness:**

CMU and all classes, including this one, strive to accommodate students in all capacities by creating a learning environment that considers the health and well-being of all students. A review the university policies regarding health and wellness can be reviewed at:

https://www.cmu.edu/graduate/current-grad-students/health-and-wellness/index.html

Graduate student policies can be reviewed at: https://www.cmu.edu/graduate/policies/index.html

**Covid-19 Policies:**
Being identified as a close contact no longer requires isolation. Students should attend class in person unless they have tested positive or are experiencing COVID symptoms. Those students should self-isolate until receiving a negative COVID test and symptoms resolve. Students who test positive should report their result through the online self-reporting tool and follow all relevant guidance.

Students who need to miss class should email their professors, self-isolate until cleared by Community Health and Well-Being, and wear a high-quality, well-fitting facial covering for 10 days after testing positive. If personal accommodations are needed, students should reach out to the Office of Disability Resources.

**Diversity and Inclusion:**

It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let me know so we can make arrangements for you.

The topics that we're covering in this class can be difficult, not just intellectually but emotionally. While I expect there to be rigorous discussion and even disagreement during our class discussions, I ask that you engage in discussion with care and empathy for the other members in the classroom. Aim to disagree without becoming disagreeable. In this class we will not shy away from the uncomfortable. Critically examining and assessing our most basic assumptions and values is not just one of the tasks of philosophy but is an activity vital to living an authentic life. I urge you to have the courage to the uncomfortable in this class. In exchange for your courage, I will work to ensure a classroom environment that supports your taking these intellectual and emotional risks.

**Accommodations for Students with Disabilities:**

If you have a disability and have an accommodations letter from the Disability Resources office, I encourage you to discuss your accommodations and needs with me as early in the semester as possible. I will work with you to ensure that accommodations are provided as appropriate. If you suspect that you may have a disability and would benefit from accommodations but are not yet registered with the Office of Disability Resources, I encourage you to contact them at access@andrew.cmu.edu.

**Student Academic Success Center (SASC):**

SASC focuses on creating spaces for students to engage in their coursework and approach learning through a variety of group and individual tutoring options. They offer many opportunities for students to deepen their understanding of who they are as learners, communicators, and scholars. Their workshops are free to the CMU community and meet the needs of all disciplines and levels of study. SASC programs to support student learning include the following (program titles link to webpages):

- **Academic Coaching**--This program provides holistic, one-on-one peer support and group workshops to help undergraduate and graduate students implement habits for success. Academic Coaching assists students with time management, productive learning and study habits, organization, stress management & other skills. Request an initial consultation here.
- **Peer Tutoring**--Peer Tutoring is offered in two formats for students seeking support related to their coursework. Drop-In tutoring targets our highest demand courses through regularly scheduled open tutoring sessions during fall & spring semesters. Tutoring by appointment consists of ongoing individualized & small group sessions. You can utilize tutoring to discuss

course related content, clarify and ask questions, and work through practice problems. Visit the webpage to see courses currently being supported by Peer Tutoring.

- **Communication Support**--Communication Support offers free one-on-one communication consulting as well as group workshops to support strong written, oral, and visual communication in texts including IMRaD and thesis-driven essays, data-driven reports, oral presentations, posters and visual design, advanced research, application materials, grant proposals, business and public policy documents, data visualisation, and team projects. Appointments are available to undergraduate and graduate students from any discipline at CMU. Schedule an appointment on their website (in-person, zoom synchronous, or recorded video), attend a workshop, or consult handouts or videos to strengthen communication skills.
- **Language and Cross-Cultural Support**- Program supports students seeking help w/ language & cross-cultural skills for academic & professional success through individual & group sessions. Students get assistance with writing academic emails, learning expectations & strategies for clear academic writing, pronunciation, grammar, fluency, and more. Make an appointment with a Language Development Specialist to get individualized coaching.
- **Supplemental Instruction (SI)**--This program offers a non-remedial approach to learning in historically difficult courses at CMU. It utilizes a peer-led collaborative group study approach to help students succeed and is facilitated by an SI leader, a CMU student who has successfully completed the course. SI offers a way to connect with other students studying the same course, a guaranteed weekly study time that reinforces learning and retention of information, as well as a place to learn and integrate study tools and exam techniques specific to a course. Visit the website to see courses with SI available here.

**Course Schedule (subject to modification):**

| Module # | Class Topics | Module Launch Dates | Live Class Dates | Assignment Deliverables |
|---|---|---|---|---|
| 0 | Intro to the course | 28-Aug | 28-Aug | Profile and Exercise |
| | Intro to the course | 30-Aug | | Pre-Assessment Survey |
| | | | | Intro to MDB Survey |
| 1 | DBM and Emerging Tech background and Project Launch | 4-Sep | | Team Project 1 (Teams 1/2 Presentation, 3+ Written) |
| | DBM background (cont.) | 6-Sep | | Peer Evaluation for Team Project 1 |
| | DBM Project Q&A | | 11-Sep | Ind. Team Presentation Evaluation |
| | DBM Project 1:1 | | 13-Sep | |
| | DBM Project Work | 18-Sep | | |
| | DBM Presentations | | 20-Sep | |
| 2 | IoE background and Project Launch | 25-Sep | | Team Project 2 (Teams 1/2 Presentation, 3+ Written) |
| | IoE background (cont.) | 27-Sep | | Peer Evaluation for Team Project 2 |
| | IoE Q&A | | 2-Oct | Ind. Team Presentation Evaluation |
| | IoE Project 1:1 | | 4-Oct | |
| | IoE Project Work | 9-Oct | | |
| | IoE Presentations | | 11-Oct | ***Mid-course feedback survey*** |
| | | ***Oct16-20 Fall Break*** | | |
| 3 | ePayment and IA background and Project Launch | 23-Oct | | Project 3 (Teams 1/2 Presentation, 3+ Written) |
| | ePayment and IA background (cont) | 25-Oct | | Peer Evaluation for Project 2 (Individual) |
| | eP & IA Q&A | | 30-Oct | Ind. Team Presentation Evaluation |
| | eP & IA Project 1:1 | | 1-Nov | |
| | eP & IA Project Work | 6-Nov | | |
| | eP & IA Presentations | | 8-Nov | |
| 4 | Quantum Comp. Background | 13-Nov | | |
| | | 15-Nov | | |
| 5 | Blockchain background and Project Launch | 20-Nov | | Project 4 (Teams 1/2 Presentation, 3+ Written) |
| | | ***Nov21-24 Thanksgiving Break*** | | |
| | BC background (cont) | 27-Nov | | Peer Evaluation for Project 4 (Individual) |
| | BC Q&A | | 29-Nov | Ind. Team Presentation Evaluation |
| | BC project 1:1 | | 4-Dec | |
| | BC Presentations | | 6-Dec | |
| 6 | Ind. Exam | 12/11-15/2023 | | Final Exam (Individual) |
| | | | | Post-Assessment and Engagement Survey (Individual) |
| | | | | |
| | **All Q&A class meeting times must be scheduled in advance* and are 6-7:20PM EST** | | | **All deliverable due date times are 11:59PM EST. Refer to the canvas delivery dates/times.** |
| | **All 1:1 meetings must be scheduled in advance* and are 20 min time slots between 6-9PM EST** | *see canvas survey | | *Do not confuse due dates with available dates in Canvas* |
| | **All class presentation times are at 6-7:20PM EST** | *see canvas | | |
| | *All class times are optional attendance with exception to the presentation days* | | | |

**Heinz Academic calendar:** https://www.heinz.cmu.edu/heinz-shared/_files/img/current-students/heinz-college-academic-calendar-2023-24