

WENTWORTH INSTITUTE OF TECHNOLOGY

School of Computing and Data Science

Capstone I

Spring 2023

Course Number: DATA-6950 Instructor Name: Mehmet Ergezer

Classroom: Online Office Location: CEIS 302

Class Schedule: MW 6:30 – 7:50 PM Appointments and Meetings: T 5:00 to 6:00 PM and calendly.com/profmemo/

Lecture/Lab/Total Credits: 3/0/3 Email address: ergezerm@wit.edu

COURSE DESCRIPTION:

This course is the first of a two-course capstone sequence in which students apply their cumulative learning from their program to address a real-world problem. In the sequence students develop a data-informed solution using their analytical, statistical, and/or visualization skills to address complex social problems and to demonstrate integrated knowledge. This first course in the sequence focuses on quantitative and qualitative research methods, including methodology and design, with its main deliverable being an approved project proposal.

COURSE PREREQUISITES/COREQUISITES:

DATA 6XXX Data Science Foundations or MNGT XXXX Applied Business Analytics.

REQUIRED TEXTBOOK(S):

None.

THE COLLEGE BOOKSTORE:

Location: 103 Ward Street Boston MA 02115

Telephone: 617-445-8814

RECOMMENDED LEARNING MATERIALS:

The following books are recommended, but not required to be purchased:

Creswell, John W., and J. David Creswell. *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications, 2017. ISBN: 978-1506386706 [RC]

Markel, *Mike*. *Technical Communication*, 2018. ISBN-13: 978-1-319-10788-8 [TC]

Kahneman, Daniel. *Thinking, fast and slow*. Macmillan, 2011. ISBN: 978-0374275631 [FS]

Huff, Darrell. *How to lie with statistics*. WW Norton & Company, 1993. ISBN: 978-0-393-09426-8

COURSE LEARNING OUTCOMES:

At the completion of this course, the student should be able to:

- Formulate data-informed solutions to real-world challenges
- Discuss ethical implications and social responsibility in the context of an analytical problem
- Communicate data findings effectively to an audience, in oral, visual, and/or in written formats

INSTRUCTIONAL METHODOLOGIES:

As an online course aimed to build a comprehensive capstone project, the students are expected to work independently while keeping in regular contact with the Professor regarding their homework, drafts, reports, and presentations.

ATTENDANCE POLICY:

The coursework will take place in an online environment. You will participate in a variety of online activities which you will earn points towards your final grade. You are expected to contribute constructively to all activities and attend our synchronous sessions. You are expected to attend all of the synchronous and asynchronous sessions. For the asynchronous sessions, attendance may be taken based on your participation in the online activities, such as reviewing the online materials, participating in discussion forums, etc. Unexcused absences of the synchronous meetings will have negative impact on your attendance and participation grade.

GRADING POLICY:

There will be about five assignments during the semester. Assignments will involve writing, recording, and presenting drafts, reports, and/or presentations building towards a project proposal. Students are expected to critique existing work, create big ideas, conduct a literature search, devise realistic deliverables, and timeline.

This course does not assign a weighted grade and students need a “Satisfactory” to register for Capstone II. Student grades are based upon the following criteria:

| | |
|--------------------------|-----|
| Project Proposal | 55% |
| Homework Assignments | 40% |
| Attendance/Participation | 5% |

Table 2: Revised Graduate Grading Scale

| Grade | Weight | Numerical Definition | Definition |
|-------|--------|----------------------|----------------------------|
| A | 4.00 | 93-100 | Distinction |
| A- | 3.67 | 90-92 | High Pass |
| B+ | 3.33 | 87-89 | Pass |
| B | 3.00 | 83-86 | Pass |
| B- | 2.67 | 80-82 | Provisional |
| C+ | 2.33 | 77-79 | Provisional |
| C | 2.00 | 73-76 | Provisional |
| F | 0.00 | 0-72 | No Pass |
| P | 0.00 | | Pass (for credit) |
| S | 0.00 | | Satisfactory (no credit) |
| U | 0.00 | | Unsatisfactory (no credit) |
| W | 0.00 | | Withdrew |
| IC | 0.00 | | Incomplete |
| NR | 0.00 | | Not Reported |

WENTWORTH GRADING SYSTEM:

Grades of "P" or "F" are awarded to courses with this grading scheme and carry academic credit. "P" grade do not calculate into the GPA.

Wentworth does not offer students the option to audit a course; if a student is granted an exception to this policy the course cannot be converted at any time to a credit-bearing course and will not satisfy a degree requirement.

ADD/DROP:

Students should check the academic calendar to confirm the add/drop deadline. Dropping and/or adding courses is done online. Courses dropped in this period are removed from the student's record.

Non-attendance does not constitute dropping a course. If a student has registered for a course and subsequently withdraws or receives a failing grade in its prerequisite, **then the student must drop that course**. In some cases, the student will be dropped from that course by the Registrar. However, it is the student's responsibility to make sure that he or she meets the course prerequisites and to drop a course if the student has not successfully completed the prerequisite. The student must see his or her academic advisor or academic

department chair for schedule revision and to discuss the impact of the failed or withdrawn course on the student's degree status.

MAKE-UP POLICY:

Due to the fast-paced nature of this project-based course, all submissions and presentations must be completed on time. Any late deliverables or missed exams will be assigned a grade of zero.

ACADEMIC SUPPORT:

The Center for Academic Excellence facilitates Wentworth students' academic success and helps them to achieve their full learning potential. Students may choose to receive individual assistance through one-on-one tutoring in many subjects, including math, science, writing, and major classes. In addition, the Center for Academic Excellence offers Facilitated Study Groups (FSGs), tutor-led study tables, academic workshops, and learning-strategy consultations. The peer-tutoring program is certified by the College Reading and Learning Association's International Tutor Training Certification program. To make an appointment or to review our drop-in offerings, please visit www.wit.edu/cae. For additional assistance or support on subjects not listed, please reach out via email at cae@wit.edu.

ACADEMIC HONESTY STATEMENT:

Students at Wentworth are expected to be honest and forthright in their academic endeavors. Academic dishonesty includes but is not limited to cheating, prohibited collaboration, coercion, inventing false information or citations, plagiarism, tampering with computers, destroying other people's coursework or lab or studio property, theft of course materials, posting coursework/course materials to websites, or other academic misconduct. If you have any questions, contact your professor prior to submitting an assignment for evaluation. See your academic catalogue for a full list of definitions and the WIT Academic Honesty website for the procedures: wit.edu/about/policies/academic-honesty.

STUDENT ACCOUNTABILITY STATEMENT:

You are accountable for the materials that you turn in and your performance in this course. If you are negligent in your responsibilities as a student, your performance will be negatively impacted. You must take responsibility for your actions. We take violations of academic dishonesty and misconduct seriously. Using anyone else's work without credit will be considered plagiarism. Sanctions for academic dishonesty include receiving a failing grade for the course and formal complaint to the Academic Discipline Board. If you have any questions about academic honesty or accountability reach out to me directly.

THE CENTER FOR WELLNESS:

College can be challenging and it is common to feel overwhelmed or stressed at times. If these feelings are related to course work or academic performance, please talk to me. For more significant mental health concerns, **The Center for Wellness (003 Watson Hall*, 617-989-4390)** provides free and confidential mental health counseling.

If you or someone you know needs support around thoughts of suicide, the following resources are available:

- The Center for Wellness, Watson 003*, 617-989-4390, M-F 8:15-4:45
- BeWell@WIT 24/7 telecounseling, 617-989-4390 option #2
- Campus Police, First level of 610 Huntington Avenue, 617-989-4444, 24/7
- Samaritans, call or text 1-877-870-4673
- Crisis Text Line, text “start” to 741-741
- National Suicide Prevention Lifeline, call 1-800-273-8255
- GLBT Youth Hotline, call 1-866-488-7386
- Beth Israel Deaconess Emergency Room, 190 Pilgrim Rd Boston, MA

Students requiring academic accommodations must provide an official accommodation memo from **The Center for Wellness (003 Watson Hall*, 617-989-4390)** and contact me privately to discuss logistics.

* The Center for Wellness will be providing mental health counseling sessions and accessibility services appointments virtually and appointments can be scheduled by calling 617-989-4390. The Center for Wellness is open for mental health emergencies. Additionally, 24/7 emotional support is available by this same phone line. Thank you for keeping our community safe and healthy by following these procedures.

COLLEGE OF THE FENWAY STUDENTS:

If you are enrolled in this course through COF Cross Registration, notify your course instructor. Please provide her/him with your email address to be sure that you receive course information in a timely way. You should also discuss how to access online applications that might be used in the course.

SYLLABUS OUTLINE:

A tentative schedule is provided below. The schedule is subject to change as the semester progresses.

| Week | Date | Topic | Source | Assignment |
|------|-------|--|----------------------------------|----------------------|
| 1 | 1/9 | Introduction to Technical Communication | [TC].Ch1 | H0:Keywords |
| 2 | 1/16 | The Selection of a Research Design | research [RC].Ch1 | H1:Abstract |
| 3 | 1/23 | Review of the Literature | [RC].Ch2 | P1: Problem |
| 4 | 1/30 | The Use of Theory | [RC].Ch3 | H2: Paper |
| 5 | 2/6 | Writing Strategies and Ethical Considerations | [RC].Ch4 | P2: Literature |
| 6 | 2/13 | The Introduction | [RC].Ch5 | H3: Literature |
| 7 | 2/20 | The Purpose Statement | [RC].Ch6 | P3: Thesis |
| 8 | 2/27 | Research Questions and Hypotheses | [RC].Ch7 | P4: Pitch |
| 9 | 3/6 | Spring Break: No classes | | |
| 10 | 3/13 | Persuasion in business and real-world | Thinking fast and slow | P5: Proposal |
| | | Quantitative Methods | [RC].Ch8 | |
| 11 | 3/20 | Qualitative Procedures | [RC].Ch9 | P6: Capstone |
| | | | Lies, damned lies and statistics | |
| 12 | 3/27 | Mixed Methods Procedures | [RC].Ch10 | P7: Proposal |
| | | | | Critique |
| 13 | 4/3 | Understanding Ethical and Legal Considerations | [TC].Ch2 | |
| 14 | 4/10 | Proposal Preparation | | Final proposal |
| 15 | 4/17* | Critiques | | Project presentation |

Homework Assignments

H0: Select 7 keywords that match your interest from a relevant conference

H1: Write an abstract for a DS/BA blog/article you find online. It should be between 150 and 200 words, it should summarize the results of the article, and it should not include introductory information.

H2: Pick a technical paper, such as a conference or journal article. Discuss:

a. Is the research in the paper novel? Include your own literature review (list of papers) along with a discussion of whether or not the authors adequately connected their work with previous research.

b. Are the claims of novelty clearly supported?

c. Is the paper clear, logical, and well-organized?

d. Is the research reproducible?

e. What could a reader learn from the paper?

f. Is the research important and significant?

g. Is the contribution clearly stated in the abstract, introduction, and conclusion?

h. Is the paper well-written with respect to layout, figure clarity, grammar, formatting, and so on?

H3: Write a two-min review for each source in your lit review. State your top three sources

Project Proposal Assignments

P1: Propose a problem for your Capstone. Include any relevant data or source you may find

P2: Literature review with 10+ formal sources

P3: Write the thesis statement for your Capstone

P4: Present an elevator pitch for your research and submit preliminary data analysis

P5: Initial draft for your proposal

P6: Submit an outline for your Capstone, including section and subsection numbers and titles.

P7: Present revised proposal to classmates; gather critiques

P8: Submit revised proposal. Include a separate response to reviewers that illustrates what you have updated and where.