Course Policy Statement

Last updated: January 13, 2024

1   Basic information

Time and place.   Section 1202   ⏱ TR8   📍 CH117
Section 5602   ⏱ TR10   📍 CH117

Instructor. Prof. Nelson Uhan   📍 CH379   ✉ uhan@usna.edu

Extra instruction. My schedule is posted outside my office door. Feel free to stop by without notice if you have a quick question. If you need extensive help, or if you want to guarantee that I will be available, contact me to schedule an appointment.

Course website. https://courses.uhan.me/capstone/

Most course materials (e.g. this course policy statement, project guidelines) and important course announcements will be posted on the course website.

2   Course organization

Capstone project. The main focus of this course is your capstone project. You will work in teams on a semester-long project that applies operations research and statistical methods to a problem of your choosing.

Class. Class time will be primarily devoted to lessons on technical writing and presentations, meetings with me, and working on your projects.

Biweekly meetings and contracts. You and your team will meet with me biweekly (every two weeks) to discuss your recent progress and future plans. At each meeting, you will write a contract with me, in which each team member is assigned a task they will need to complete by the next meeting. Each individual team member is responsible for making progress with their specific contracted task.

Written report. You will be required to submit a written report that describes your work at the end of the semester. You will work on this report in pieces and submit drafts throughout the semester. I will provide feedback on these drafts so that you can incorporate them into your report as the semester progresses.

Presentations. You will be required to give a presentation on your work on Capstone Day, which will take place on Wednesday, May 1. USNA students and faculty, project stakeholders, as well as distinguished guests from elsewhere, will be in attendance.

In addition, you will be required to give interim presentations on your progress at the end of the 6-week and 12-week marking periods. Your peers and I will provide feedback on these interim presentations so that you can incorporate them into your presentation on Capstone Day.

3   Grading

Course grading. Your course grade will be based on your performance on a number of standards in five areas:

(1) meeting deadlines,

(2) individual contribution,

(3) formulation and analysis,

(4) written report, and

(5) presentations.

See the rubric on page for the list of standards.

For each standard, you will receive a score of **E**xemplary, **S**atisfactory, **D**eveloping, or **U**nsatisfactory. Your scores on the standards will be converted to a letter grade as follows:

	Meeting deadlines Individual contribution	Formulation and analysis Written report Presentations
A	S in all standards	S or E in all standards E in at least 50% of standards
B	S in all standards	S or E in all standards
C	D or S in all standards S in at least 75% of standards	D, S, or E in all standards S or E in at least 75% of standards
D	D or S in all standards S in at least 50% of standards	D, S, or E in all standards S or E in at least 50% of standards

To earn a particular letter grade, you must meet or exceed the requirements in all five areas. You will receive the highest grade you qualify for.

I reserve the right to lower the benchmarks described above if I deem it necessary. I will not raise these benchmarks.

Late submissions. Late submissions will not be accepted under any circumstances. If you need an extension, please discuss your situation with me <u>before</u> the deadline.

4   Academic honesty and classroom conduct

Academic honesty. All work you submit must represent your own scholarly and creative efforts. In your written reports and presentations, make sure to cite all your sources.

In this course, you may <u>not</u> use generative Artificial Intelligence (AI) to complete any part of your project, including all aspects of formulation and analysis, and writing your report and presentations. You are responsible for identifying whether a tool is considered generative AI. If in doubt, ask me.

Any act of academic dishonesty will be reported to your company officer, the department chair, and your academic adviser.

See *Policies Concerning Graded Academic Work* (USNAINST 1531.53D) and *Brigade Honor Program* (USNAINST 1610.3M) for more information regarding academic honesty.

Classroom conduct. You are expected to behave professionally in class. <u>U</u>nprofessional conduct includes, but is not limited to: sleeping (stand in the back or the side of the classroom if necessary) and frequent non-class-related use of electronic devices in class (e.g. watching TikTok, texting your friends). Persistent poor classroom conduct will be reported to your company officer.

/s/
Nelson A. Uhan
Mathematics Department
USNA

Grading rubric

		Exemplary	Satisfactory	Developing	Unsatisfactory
Meeting deadlines					
A1	Biweekly meetings		Attended all group meetings with a prepared agenda	Attended all group meetings, but without a prepared agenda at most once per marking period or twice over the entire semester	Otherwise
A2	Report drafts		All report drafts completed and submitted on time	All report drafts completed and submitted, missed deadlines at most once per marking period or twice over the entire semester	Otherwise
A3	Presentations		All presentations prepared on time		Otherwise
A4	Final report		Final report completed and submitted on time		Otherwise
Individual contribution					
B1	Biweekly contracts		Made substantial progress on assigned tasks from each biweekly contract	Failed to make progress on assigned tasks on at most one biweekly contract per marking period or two over the entire semester	Otherwise
B2	Project involvement		Contributed to all aspects of the project: (1) formulation and analysis, (2) written report, (3) presentations	Contributed to some aspects of the project	Otherwise
B3	Peer evaluation		Group members believe that you have served as a leader in some aspect of the project and have provided a meaningful contribution to the project	Group members believe that you gave your best effort to provide a fair and meaningful contribution to the project	Otherwise
Formulation and analysis					
C1	Identifying the problem	Clearly describes the problem; provides sufficient background information with citations to relevant literature and motivation for studying the problem	Describes the problem adequately though some key details may be missing; provides some background information and motivation for studying the problem	Description of problem is unclear or missing key details; limited background information or motivation	Description of problem is inaccurate or missing; background information or motivation is insufficient or missing

		Exemplary	Satisfactory	Developing	Unsatisfactory
C2	Identifying an appropriate modeling framework	Chooses an appropriate modeling framework and identifies key components of the model: for an optimization model, identifies objectives and constraints; for a simulation model, identifies performance metrics and alternative scenarios; etc.	Chooses an appropriate modeling framework but does not specify model components	Does not choose an appropriate modeling framework	Chooses a modeling framework that does not use operations research techniques
C3	Identifying and analyzing inputs	Provides a clear and detailed description of the input data used; presents a correct analysis of the input data (e.g. distribution fitting) if appropriate	Provides an adequate description of the input data used; a few minor details are missing; presents a correct analysis of the input data if appropriate	Description of the input data used is unclear or missing key details; input data analysis has minor errors	Description of input data is missing; input data analysis is missing, incorrect or inappropriate
C4	Modeling assumptions	Recognizes and properly justifies all assumptions	Justifies key assumptions; might miss more subtle assumptions	Does not justify or recognize one or more major assumptions	Does not include necessary assumptions
C5	Correctness and complexity of model	Model correctly captures major features and some subtleties of the problem	Model correctly captures major features of problem, for the most part	Model includes several features of the problem but missing more than one important feature	Model is too simple or too complicated to give useful information
C6	Implementing the model	Successfully and elegantly implements the model using appropriate computational tools	Correctly implements the model using appropriate computational tools	Implements the model using appropriate computational tools but does not run due to errors	Fails to implement the model
C7	Implementing alternatives	Successfully includes multiple alternatives to evaluate the model and runs all alternatives	Successfully includes one alternative to evaluate the model and runs the alternative	Implements alternative models but cannot run alternative due to errors in the model or implementation	Does not consider any alternatives
C8	Reporting outputs	Correctly and clearly describes the complete output of the model using tables and graphs, including important performance measures and comparisons of alternatives	Correctly describes the primary outputs of the model using tables and graphs, including comparisons of alternatives; includes some performance measures, but not all that are necessary to reasonably assess certain aspects of the model	Correctly describes the primary outputs of the model, but presents information in an unclear manner, without using tables or graphs	Does not describe or incorrectly describes the primary outputs of the model or performance measures
C9	Interpreting outputs	Provides a correct and detailed interpretation of the outputs; provides a reasonable recommendation based on the outputs	Provides a correct interpretation of the outputs but may leave out important details or have minor interpretation issues; provides a reasonable recommendation based on the output	Provides a flawed interpretation of the outputs; provides a flawed recommendation based on the output	Fails to interpret the outputs at all; does not provide a recommendation based on the output

		Exemplary	Satisfactory	Developing	Unsatisfactory
Written report					
D1	Grammar, spelling, punctuation (GSP)	Text contains no GSP errors	Text has a few minor GSP errors	Text has serious GSP errors or a distracting number of minor GSP errors	Text is not understandable in current form due to GSP errors
D2	Organization	Presents ideas in a logical order; report organized into sections as taught in class	Presents ideas in a mostly logical order; report organized into sections as taught in class	Report organized into sections as taught in class; ideas in individual sections are not organized	No organization present in paper
D3	Clarity	Text is clear and concise	Text is clear and readable for the most part	Text is wordy or awkward	Text is unclear
D4	Completeness	Text provides good depth and detail; ideas are fully developed and supported; describes all parts of the project, including: background and motivation, problem description, data summary, model description, results, recommendations and limitations	Text provides adequate depth; a few needed details or ideas are omitted; major ideas are adequately developed and supported	Additional depth is needed in places; at least one major idea is not adequately developed and supported	Important details or ideas are often omitted, not developed, or not supported
D5	Tone	Appropriate for an academic journal or professional memo	Appropriate for a student paper	Appropriate for a student paper but with sections of informality	Too informal
D6	Technical language	All technical language is used correctly, including terminology related to formulation and analysis; all mathematical symbols and variable names are correctly explained in words	Most technical language is used correctly; most mathematical symbols and variable names are correctly explained in words	Many errors in technical language; many mathematical symbols and variables names are not correctly explained in words	Technical language is consistently incorrect or imprecise; mathematical symbols and variables are not explained in words at all
D7	Citations and references	All sources are correctly documented; in-text citations and reference list follow APA style exactly	Most sources are correctly documented; in-text citations and reference list have a few minor errors in following APA style	Most sources are correctly documented; in-text citations and reference list do not follow APA style	Fails to correctly document sources, in-text citations and reference list have major errors and do not follow APA style
D8	Appearance and formatting (AF)	Consistent and professional appearance throughout: font sizes for text, captions, and section headings are appropriate and consistent; equations are properly formatted	Report has a few minor AF issues	Report has consistent AF issues such as missing captions, missing titles and axes labels on graphs; a distracting number of minor AF issues	Report has serious AF issues

		Exemplary	Satisfactory	Developing	Unsatisfactory
Presentations					
E1	Organization	Presents ideas in a logical order that the audience can easily follow; sequences ideas in a way that tells a compelling story	Presents ideas in a logical order that the audience can follow	Presents ideas in a mostly logical order; some ideas or transitions between ideas are hard to follow	Overall sequencing of ideas is difficult to follow
E2	Completeness	Presentation provides a complete overview of the project, including: background and motivation, problem description, data summary, model description, results, recommendations and limitations	Presentation provides a mostly complete overview of the project	Presentation fails to provide an overview of one major part of the project	Presentation fails to provide an overview of two or more major parts of the project
E3	Visual impact of slides	Slide design and font selection allow for easy reading; main points are emphasized by minimizing unnecessary details and irrelevant information; graphics and tables explain the main points effectively and enhance the presentation	Slide design and font selection mostly allow for easy reading; main points are clear but sometimes diminished by unnecessary details or irrelevant information; graphics and tables are relevant and contribute to the presentation	Slide design and font selection make reading often difficult; main points are often diminished by unnecessary details or irrelevant information; graphics and tables are sometimes unclear or irrelevant	Slide design and font selection make reading consistently difficult; main points are obscured by unnecessary details or irrelevant information; graphics and tables are unclear, irrelevant, or completely absent
E4	Grammar, spelling, punctuation (GSP)	Presentation slides contain no GSP errors	Presentation slides have a few minor GSP errors	Presentation slides have serious GSP errors or a distracting number of minor GSP errors	Presentation slides are not understandable in current form due to GSP errors
E5	Professionalism	Slide content, verbal communication, and personal appearance are professional and appropriate for the occasion and audience	Slide content, verbal communication, and personal appearance are mostly professional and appropriate for the occasion and audience	Slide content, verbal communication, and personal appearance are somewhat unprofessional and inappropriate for the occasion and audience	Slide content, verbal communication, and personal appearance are unprofessional and inappropriate for the occasion and audience
E6	Presentation style and delivery	Body language is relaxed; consistent eye contact with audience; clear voice with appropriate volume and modulation; does not read from notes or slides	Body language is mostly relaxed; mostly consistent eye contact with audience; clear voice; mostly does not read from notes or slides	Body language shows nervous tension; often avoids eye contact with audience; voice is often unclear; often reads from notes or slides	Body language shows a lot of nervous tension; completely avoids eye contact with audience; unclear voice; only speaks while reading from notes or slides