

Course Policy Statement

Last updated: January 17, 2023

1 Basic information

Time and place. 🕒 MWF4 📍 CH120

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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://www.usna.edu/Users/math/uhan/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 primarily be devoted to working on your project. Use this time wisely! This is a great time to ask questions. We will devote several classes throughout the semester to learning about how to write and present technical material.

Weekly contribution messages. Every week, you will be required to submit a brief message (1-3 sentences) that describes your individual contributions to your project for that week. Each individual on a team must submit their own contribution message. These messages will be used to keep track of your progress and individual contributions. Contribution messages are due on Fridays at noon.

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 and submit this report in pieces throughout the semester. I will provide feedback on these pieces so that you can incorporate them into your report as the semester progresses.

Presentations. You will be required to present a poster or give a presentation on Capstone Day, which will take place on Wednesday, May 3. USNA students and faculty, project stakeholders, as well as distinguished guests from elsewhere, will be in attendance.

3 Grading

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

- (1) meeting deadlines,
- (2) your level of individual contribution,
- (3) formulation and analysis,
- (4) written report and presentation.

See the rubric on page 3 for the list of standards.

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For each standard, you will receive a score of Exemplary, Satisfactory, Developing, or Unsatisfactory. Your scores on the standards will be converted to a letter grade as follows:

	Meeting deadlines	Individual contribution	Formulation and analysis	Written report and presentation
A	S in all standards	S in all standards	S or E in all standards E in at least 50% of standards	S or E in all standards E in at least 50% of the standards
B	S in all standards	S in all standards	S or E in all standards	S or E in all standards
C	S in all standards	D or S in all standards	D, S, or E in all standards S or E in at least 75% of standards	D, S, or E in all standards S or E in at least 75% of standards
D	S in all standards	D or S in all standards	D, S, or E in all standards S or E 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 the requirements in all four 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 before 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. 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. Unprofessional 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. browsing Facebook, 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	Weekly contribution messages	All messages submitted on time		Otherwise
A2	Written reports	All reports submitted on time		Otherwise
A3	Presentations and posters	All presentations and posters prepared on time		Otherwise
Individual contribution				
B1	Project involvement	Contributes to all aspects of the project (formulation and analysis, written report, presentation)	Contributes to only some aspects of the project	Does not make a meaningful contribution to the project
Formulation and analysis				
C1	Identifying the problem	Clearly describes the problem; provides sufficient background information and motivation for studying the problem	Describes the problem adequately; provides some background information and motivation for studying the problem	Description of problem is unclear or missing key details; limited background information or motivation
C2	Identifying an appropriate modeling framework	Chooses an appropriate modeling framework and explains why it is appropriate compared to other possible frameworks	Chooses an appropriate modeling framework and explains why it is appropriate	Does not choose an appropriate modeling framework
C3	Literature review	Reviews at least 6 relevant works; clearly describes how the works are related to each other and to the project	Reviews at least 3 relevant works; describes how the works are related to each other and to the project	Does not review any previous related work
C4	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 with a few minor details missing; presents a correct analysis of the input data if appropriate	Description of input data is missing; input data analysis is missing, incorrect or inappropriate
C5	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

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		Exemplary	Satisfactory	Developing	Unsatisfactory
C6	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
C7	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
C8	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
C9	Reporting outputs	Correctly and clearly describes the complete output of the model, using tables and graphs when appropriate	Correctly describes the primary outputs of the model, using tables and graphs when appropriate	Describes some of the outputs of the model; might have minor errors, or missing important parts of the output	Does not describe the outputs of the model
C10	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
Written report and presentation					
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	Presents ideas in a mostly logical order	Presents main ideas in a logical order but descriptions of individual ideas are unorganized	Does not present ideas in a logical order
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	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 parts of informality	Too informal

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		Exemplary	Satisfactory	Developing	Unsatisfactory
D6	Technical language	All technical language is used correctly; all mathematical symbols and variable names are correctly explained in words	Technical language is used correctly, for the most part; most mathematical symbols and variable names are correctly explained in words	Technical language is often incorrect or imprecise; many mathematical symbols and variables names are not explained in words or explained incorrectly	Technical language is consistently incorrect; mathematical symbols and variables are not explained in words or explained incorrectly
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	Many sources are incorrectly documented; in-text citations and reference list do not follow APA style	Fails to document sources at all
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
D9	Presentation	Professional demeanor; slides/poster clearly summarize the problem, model, analysis, and results	Professional demeanor; slides/poster adequately summarize the problem, model, analysis, and results	Professional demeanor; slides/poster do not include major topics like the problem, model, analysis and results	Unprofessional demeanor; slides/poster fail to summarize the problem, model, analysis and results