INTRODUCTION TO

Statistical Inference

If you are reading this, it means you've probably taken Introduction to Statistical Inference in Fall 2025. So... welcome to the course! This document will provide you with guidelines for various parts of the course. It will hopefully answer possible questions you might have during your journey.

ASSIGNMENTS

- You will have **5 assignments**, 2-3 of them covering the midterm topics and 3 for the final exa topics.
- Right as Aban begins, we'll introduce a **term-long data project**. As the course progresses, keep this project in mind; it's an opportunity to apply new concepts as you learn them, effectively preparing you for real-world data science tasks. While there are bonus points in this project that can help your grade, more importantly it is a critical learning tool meant to connect theory with practice. The main goal is to enhance your practical skills, giving you a taste of what it's like to step into the shoes of **a data scientist**, perhaps for the first time.
- We recognize that sometimes life gets busy, but we've also observed that extending deadlines can inadvertently lead to decreased student performance. So there are no extensions whatsoever; instead, we're introducing **10 grace days** so that you can use them to manage your assignment deadlines better. This added flexibility is meant to help you balance your coursework with other commitments. Refer to this code for how your cumulative delay penalty is calculated.
- For each assignment, you have the chance to benefit from a minimum of 10% bonus margin. This will not boost your score above 100%; instead, think of it as having 110 points available, with full credit achievable by earning 100. This approach is meant to ease the pressure, giving you room to navigate through assignments with **less stress over minor mistakes**.

SUBMISSION GUIDLINES

- Upload a **single typed PDF file** accompanied by your code scripts.
- For any computational sections, each student is required to submit a well-structured, typed report that presents a concise summary of their analysis. The report should include the figures mentioned in the problem description and offer a discussion of each.
- For each section of the report, a separate script is expected, which can be written in MATLAB (.m), Python 3 (.py or .py3), or whatever relevant programming language. You can use scripts in formats like MATLAB live scripts, Python notebooks, or R Markdown but each section has to be separated and the report should still be in the separate written report format as explained. Be sure to include all relevant functions and any non-standard libraries used in your code.
- The report should be treated as a **short** academic piece of writing, and it should not contain any code snippets. Instead, it should provide the author's insights about the results and demonstrate a strong grasp of the reference article. Academic reports typically maintain a **concise** and highly formal tone.
- The report can be written in either **Persian or English**, with no preference for either. In Persian reports, use B Nazanin with a font size of 14 for the text body and B Titr with a font size of 18 for titles. English reports should use Times New Roman 12 for the body text and Times New Roman 16 for titles.
- Sentences should be written in the passive tense. In Persian reports, the correct usage of the **zero-width non-joiner** is highly encouraged.
- Each **figure** and **table** must have a caption placed consistently (figures: below, tables: above). Ensure proper numbering (e.g., Figure 1, Table 2) and reference them correctly in the text. Legends, axis labels, and units must be appropriately placed to maximize readability.
- If you use any external sources—whether a paper, book, online resource or even discussions with others— that is totally fine and encouraged! But, you must **properly cite them** at the end of your report. Remember we start this term by fully trusting you all, so respect this **trust**, please.
- For each assignment you submit, you will participate in an in-person or virtual **hand-in session** for the computational questions and an **in-person quiz** for the theoretical ones, where we will evaluate your understanding of the work you've submitted. This is not just a formality—it's a crucial part of the learning process. You will be expected to **explain your approach**, justify your decisions, and demonstrate your grasp of the material. These sessions also provide an opportunity for **clarifying concepts** and receiving direct feedback, ensuring you stay on track and continuously improve. If you miss any of these evaluation proccesses you will unfortunatley be **graded a zero** as your assignments grade.

- Remember, at the end of the day this is all to prepare you for a hopefully **very successful** academic and industrial future so look at these not as rules, but as guidelines to enhance your performance and a practice of how to present your valuable work, well. We will be flexible on imposing and enforcing these guidelines as long as it is visible that you have made an effort to follow them.

EXAMS AND QUIZZES

- You must be ready for your quizzes anytime starting one week after your assignment deadline. **No excuses accepted!**
- **Midterm** and **final** exams will consist of conceptual questions with minimal emphasis on memorization —though some is unavoidable given the nature of the material. Detailed explanations on topics and question styles accompanied by **samples** will be provided closer to each exam.
- When calculating your final grade we will use **multiple weighting formulas** and then choose the one that **maximizes** each individual students grade. So if you underperform in for example your midterm, you can make it up in your final and the weighting system will grade you in **favor** of your improved final grade.

SOME GENERAL POINTS

- We aim to award partial credit if you **attempt** to solve a question. As explained before, have designed this course so that everyone gets **rewarded for all their efforts** and maybe even more. However, if an unusual similarity between your work and another student's work is observed, you will lose the entire points of that work, and in case of proven cheating, even just once, you will be completely deprived of any class participation points for the term and will be treated more strictly for the rest of the term.
- Using the advancements of **AI** technology has become an undeniable part of our daily lives especially as engineers, not only is it not banned in this class but encouraged as we all have to learn how to utilize it to our advantage in order to grow faster and work more efficiently. But, the goal of taking courses is to learn to walk on the edges of science, tackle problems from different angles and finally manage to break them down and produce work that's generated from your **brain**! So after putting in the work, you can use AI tools as a study partner for guidance, to check your work and results, get help, inspiration, and more. But please do not hand in work that is partially or fully generated by any of these tools. If we see cases of handed in material that is generated by any sort of LLMs a good amount of that works grade will be lost.
- Please do not hesitate **to seek help** for any scientific and none scientific help you need in this course. For general questions you can contact our Chief TA, via private message or email. For assignment specific questions, if you feel like your question can benefit the whole class, ask it in the class group. If it's more specific to you **email** the homework/task designer/author.
- Please direct your private questions to assignment TAs via email. All emails about the Course should start with "ISI **Fall** 2025" . **Don't** send private messages on socials so the TAs can be more efficient in answering your emails.
- Other than asking your educational questions, please always give us **feedback** and **constructive criticism** and for this, feel free to contact the Chief TA anytime.
- Finally, please do not be overwhelmed by all these explanations and guidelines, we decided that instead of giving you a bunch scattered notes and directives, we'd just put everything in one place in a very **comprehensive** manner so you kind of have a handbook you can look at if you have any questions. At the end of the day everything we do is to **enhance** your learning process. By teaching you to think critically, rather than merely chasing good grades (Yes we know those are important too), **we aim to bring you one step closer to the bright future that awaits you.**

With Respect,
Your Teaching Team
Under supervision of Mohammadreza Abolghasemi
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