Guidelines for students – undergrad or master students doing research with me for 1 or 2 semesters:

By Simona Mihaita, January 2023

First of all, thank you for choosing to work with me this semester on one of your courses. Whether you found the topic interesting or cool or proposed your own topic, welcome to the academic world!

Below are a few housekeeping rules in order to help you navigate the work smoothly and get familiar with my working style.

1. **Meetings and admin stuff**:
   a. **Scheduling**: Before the semester starts, I will send my availabilities for students to choose their preferred time and day to meet. Meetings normally will be online, will last 30min and will occur bi-weekly for undergrads/masters. Please be on time for the meetings and have everything prepared before we start. If you need to cancel a meeting for various reasons, please do so in advance.

   b. **Organisation during meetings:**
      i. The first meeting will be reserved for me to introduce the topic to you, the data, and the research problem/s that can be solved during the semester. The follow-up meetings will be driven by you as you will need to have ready: slides or documents (Jupyter Notebooks/words documents/Python Scripts, etc) with your progress/results/charts/findings/questions/ struggles that you might face in the last two weeks. Please take the lead and organise your work with supporting visuals prior to the meeting. Please turn on your camera during meetings to see /meet everyone in the call.
      ii. Be aware of your time and try to present your findings in max 15min and get feedback and advice in the last 15min.
      iii. Meetings with no results/no visuals/ no improvements from the last discussions are usually a waste of time for me as a supervisor and you as a student, so use your time wisely. If the student presents oneself to the meetings without any progress, that meeting will be stopped. Two consecutive meetings without any progress are usually seen as a lack of interest or time from the student in the chosen topic, and the supervision will be stopped. The student will be advised to search for another topic or another supervisor until the end of the semester if this occurs.
      iv. Example of progress slides:
         1. for those on a Literature Review topic – a selection 5 most interesting paper you have read in the last 2 weeks.
         2. For those on hand on and data-driven papers slides with correct labelled figures, charts, analytics, results int tables, interpretation, etc.
   c. **FMlab research seminars:**
      i. all students will be invited to join the Future Mobility Lab seminars (please check your calendars). These occur **bi-weekly on Mondays from 2-3 PM** and the format is that each of the FMlab members will present their latest work progress and get feedback from the rest of the team. This is your occasion to meet the rest of the academics in the Future Mobility lab. We are a research-intensive only group and work on several industry-related projects. Our time dedicated to teaching and supervision is voluntary and we do it to find passionate students that want to learn and gain new knowledge. So please DO join every seminar, learn from how presentations are being done, ask questions and/or share your ideas on the

presented topics. Please turn on your camera during meetings to see /meet everyone in the seminar and they can see you.

   d. **Mid-presentation and Final semester presentations/delivery:**
      i. All students will do two presentations during the semester: a mid and final one in front of the Future Mobility lab members, who will listen, ask questions, and mark your presentation. The marks you will obtain from these presentations will be averaged from all senior members that have graded you during your presentation.
      ii. The presentations should be around 10min – max 15 minutes with 5 minutes left for questions from the attendees.
      iii. The **mid-presentation** should be organised to introduce: the topic, the type of work that you will be doing (literature review or modeling/data mining), the research problems that you want to solve during your semester, the available data set (if any), the reflections on what methods you have tried or planning to try until the rest of the semester. Please see the recorded video of a [mid-presentation seminar](#) from 2022.
      iv. The final presentation should be organised to introduce and remind: the topic, the problems you have solved/ the relevant studies you have found that do similar things, the data mining results, the methodology you have applied, the experimental setups and results, interpretations, findings, recommendations, and conclusions.
      v. All students will be require to write a final report in [Overleaf](#) which an online Latex based editor. Please get familiar in time with Overleaf, and check out the writing guidelines below with examples of [past reports from students](#).

2. **Work organisation:**
   a. For those working on Data-driven projects please create a shared space/Repository as one of these below and please send me an invite:
      i. https://bitbucket.org/dashboard/overview
      ii. https://www.syntevo.com/smartgit/
   b. Please organise your work inside the repository in different folders such as:
      i. Data sets
      ii. Biblio
      iii. Code with explanations/readme files
      iv. Figures
      v. Results
      vi. Presentations
      vii. Final Report
   c. All students will write their report/final LR in an Overleaf document. You will be invited to an example of a shared template upon the first meeting.
   d. For those working on LR review, you can add the above folders in your Overleaf environment.

3. **Type of work during the semester:**
   a. **Literature Review**: please check the examples below who are great works:
      i. http://www.simonamihaita.com/papers/2022_03_10_Digital_Twins_Diego_published_version_remotesensing-14-01335-v2.pdf
      ii. https://www.overleaf.com/2227756663zvfgycqdyqbn
      iii. expected review papers – around 50 from all academic platforms: Science Direct, Google Schaler, Elsevier, Springer, Research Gate.
      iv. **OBS**: Please do not plagiarize your LR review nor copy-paste directly from other online papers – UTS has a plagiarism tool and all reports will be screened for a similarity index

calculation. Please avoid automated text generation tools like CHATGPT and write your own paragraphs and explanations to increase originality.

b. **Technical project work** (Data Mining/Data and modelling/ ML/ DL/ optimisation):
   i. Example of a great Honours Project report:
      https://www.overleaf.com/1166724548ncgphxwjjtkj
   ii. **Figures**: Try to script all graphs/figures that you create. Yes: All. Your adviser may ask for a completely different version of a figure, and automating it prevents lots of manual re-doing. I prefer Matplotlib; it can output high-quality PDF figures and graphs that can directly be included in pdflatex.
   iii. **Manual figures and posters.** If you really cannot automate the figure, and you really think you just need 1 version, then I recommend Inkscape for high quality vector graphics (which also export to PDF).
   iv. **Keep a clean versioning of your code, with explanations and readme files.**
   v. Remove duplicated coding files that are not needed any more
   vi. Handover will include a clean repository / commented/with readme files and correct executed Jupyter notes.
   vii. Writing your final technical report – please see the writing guidelines below.
c. **Technical simulation project** - please see examples of simulation work and reports that have been undertaken by past students:
   i. http://www.simonamihaita.com/Student_reports/2018_Zheyuan_Liu_traffic_congestion_simulation.pdf
   ii. http://www.simonamihaita.com/Student_reports/Mingyou%20Ma%20Vacation%20Scholar%20Report_Multi_agent_simulation.pdf
   iii. We have an **Aimsun simulation licence** that we share with all students – you will need to either activate your VPN for remote access or be on campus.

4. **Grades**: grades are comprised of 3 parts: mid-presentation grade, final presentation grade and final report grade which will be communicated to your supervisor.
5. **Technical Resources**:
   a. **Writing guidelines:**
      i. Please check all your text before handing over or presenting using Grammarly – UTS has free license for students and academics: https://www.grammarly.com/
      ii. If you struggle with writing, please check some online indications below:
      iii. https://www.phrasebank.manchester.ac.uk/using-cautious-language/
      iv. OBS: Please do not plagiarize your LR review nor copy-paste directly from other online papers – UTS has a plagiarism tool, and all reports will be screened for a similarity index calculation. Please avoid automated text generation tools like CHATGPT and write your own paragraphs and explanations to increase originality.

   b. **Research paper template:** you will be invited in an Overleaf Template to join. More generally, the report should be organized as:
      i. Introduction
      ii. Research Aims/Objectives
      iii. Problem definition
      iv. Methodology
      v. Case study details
      vi. Results
      vii. Conclusions and future recommendations

c. **Presentation**: the presentation slides should fit into your 10-15min presentation and usually 1 slide pe 1 minute of talk is recommended – please practice your presentation in advance so you don't go beyond your allocated time. Presentation should follow a similar structure as a report – even if is a final presentation, do not assume your audience remembers everything you have done from the beginning of your semester and provide as many details as needed to understand the context and progress. Be concise and clear. Figures need to have : labelled axes, title, and summary of explanations.

d. **Related work.** Excellent advice on How to write the Related Work section of a scientific article.

e. **High Performance Computing (IHPC in UTS):** for those of you that need high-performance computing due to large models training, UTS has the iHPC service available for all students to use. You will need to activate your VPN for remote access or be on campus.