Dear students,

I wish you are both physically and mentally fine during this time. Below you may take a look at some arrangement of your homework.

1. I will irregularly upload the graded homework to a shared folder. You can find the link at the "Useful Links" section of the course webpage. The folder is protected by a password, which is of length 10 and is formed by concatenating those initial prime numbers one by one.

2. Inside the folder, your graded homework will be zipped with a password. The default password is your student id. Feel free to contact me if you would like to have another stronger password.

3. A solution to the homework will be available shortly after each submission deadline. They are very well-written, but same as many other math publication, they unavoidably have some mistakes. As this is a postgraduate course, I think you should only have little difficulty in realizing and correcting most of them. For example, consider the solution to Hw1 Q3:

> **Solution** By def $f : X \to \overline{R}$ is measurable if $f^{-1}(G)$ is measurable. $\forall G$ open in $\overline{R}$. Every open set G in $\overline{R}$ can be written as a countable union of (a, b), $[-\infty, a)$, $(b, \infty]$, $a, b \in R$. So ff is measurable iff $f^{-1}(a, b), f^{-1}[-\infty, a), f^{-1}(b, \infty]$ are measurable.
> $\Rightarrow)$ Use
> $$f^{-1}(a, b) = \bigcap_n f^{-1}\left(a - \frac{1}{n}, b + \frac{1}{n}\right) \cdots$$

which we may change to

> **Solution** By definition, $f : X \to \overline{\mathbb{R}}$ is measurable iff $f^{-1}(G)$ is measurable for all open $G \subseteq \overline{\mathbb{R}}$. Every open set G in $\overline{\mathbb{R}}$ can be written as a countable union of (a, b), $[-\infty, a)$, $(b, \infty]$ with $a, b \in \mathbb{R}$. So f is measurable iff $f^{-1}(a, b), f^{-1}[-\infty, a), f^{-1}(b, \infty]$ are measurable.
> $\Rightarrow)$ Use
> $$f^{-1}[a, b] = \bigcap_n f^{-1}\left(a - \frac{1}{n}, b + \frac{1}{n}\right) \cdots$$

4. On the other hand, occasionally it may be good to discuss some of the solution. E.g. for the solution to Hw1 Q5, we may need extra caution when considering $g - f$, so as to avoid $\infty - \infty$. Also, I may discover something after grading your homework. Therefore, a remark document for the homework may also be given subsequently.

5. I would be very grateful if you can try some of the following in your homework submission:

   (a) Write down your name and student id in your homework. Also, write down your home institution too if you are not CUHK student.

   (b) Make a printer-friendly document, e.g. white background; use a pen color which has great contrast to the background; do not put the questions in your work; etc.

   (c) Crop the margins of your pdf. If you use LaTeX, the code may be
   ```
   \usepackage[margin=?in]{geometry}
   ```
   where ? is a small number. Else if your work is hand-written based, you may try the software "Briss" or those free online tool (Google "pdf crop" for example). They are installation-free.

   (d) If your work is hand-written based and you don't mind installation, you may also try those handy scanner app which turn a mobile phone to a scanner.