# ECON 2204
# Quiz 1

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## Instructions

- Time: 2:30-3:45 PM
- Complete this quiz in this Quarto (.qmd) file.
- Render to PDF and submit both:
    1. the `.qmd` file, and
    2. the rendered output (the `.pdf` file).
- Unless told otherwise, write your answers directly under each question.
- Some questions ask you to use chunk options so that only results appear (not code).
- This exam is closed book. No notes, texts, phones, or other study aids are allowed.
- The use of generative AI is strictly prohibited
- You may R's help manual by searching in the Help viewer in RStudio

## Questions

1. Getting Started [5 Marks]
    (a) Create an R project entitled econ_2204 and connect it to your GitHub account. Make sure you click Create git repository.
    (b) Within the econ_2204 directory on your local computer, add a new folder called quiz_1.
    (c) Add the Quiz 1 files to the quiz_1 directory.
    (d) Insert the link to your GitHub repository.
2. Quarto Basics
    (a) In the YAML at the top of this file, replace `YOUR NAME` with your name. [1 Mark]

(b) Put the following words in the appropriate font:

(i) Bold [0.5 Marks]

- **bold**

(ii) Italics [0.5 Marks]

- *italics*

(iii) Code [0.5 Marks]

- `code`

3. Write the following equations using LaTeX math syntax so that they render properly. Write them using display math. [2 Marks each]

(a) The simple linear regression model:

$$Y_i = \beta_0 + \beta_1 X_i + u_i$$

(b) The sample mean:

$$\bar{X} = \frac{1}{n} \sum_{i=1}^{n} X_i$$

3. Insert an image using Markdown image syntax. [5 Marks]

- Use the image in the uw-logo-centre-stack-black.png file, but it must render
- Add a caption that reads: Figure 1: University of Winnipeg Logo.


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4. Insert an R chunk and add an Image Using R. Use the `echo: false` execution option, so that the code does not show in the PDF.

(a) Generate a variable $x = (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)$ [1 Mark]
(b) Generate a variable $y = 2x + 5$ [1 Mark]
(c) Create a simple plot with $x$ on the $x$-axix and $y$ on the $y$-axis using the `plot()` function.
(d) Add a figure caption "Simple Plot of $X$ Versus $Y$" using the quarto execution command `fig-cap`.

(e) Add the label `fig-scatterplot` using the `label` execution command
(f) Reference the plot in a sentence below the plot

5. {r}

- #| echo: false
- #| fig-cap: “Simple Ploy of X Versus Y”
- #| label: fig-scatterplot
- x <- c(1:10)
- y <- 2*x+ 5 plot (x, y)
- As shown in Figure **?@fig-scatterplot**, Y increases linearly with X.

(a) Create a data frame using `data.frame()` called `students` with columns `name` and `grade` with the following rows:

| name | grade |
|---|---|
| Ana | 82 |
| Ben | 75 |
| Cara | 91 |
| Dan | 68 |

We want the code to print in the PDF, so set `echo: true`. Compute and print the average grade. {r} - #| echo: true - students <- data.frame( - name = c(“Ana”, “Ben”, “Cara”, “Dan”) - grade = c(82, 75, 91, 68) ) - students - average_grade <- mean(students$grade) - average_grade

6. Commit the finished quiz to your GitHub profile [1 Mark]