The first perspective seminar for MATH2504 was from Dr. Amy Chan, a mathematician, statistician, and software developer who currently works as a consultant for the industrial mathematics group Polymathian. Amy studied pure mathematics in her undergrad and honours, focusing on analysis and optimisation. During this time, she learned to code, originally doing so she could code computer games. However, she eventually used this skill to verify results from her mathematical studies. Out of university, she worked for CSIRO in applied image analysis, using her coding and mathematics skills to first study the effectiveness of different wheat growing methods and then determine segments of the brain in MRI scans. After CSIRO, she pivoted to the private sector and into her current job at Polymathian.

In a nutshell, Polymathian’s primary business model is that they give businesses a way to outsource their mathematical problems to qualified experts, who can solve the given problem. Such problems include management of energy recourses in a hydroelectric powerplant, rostering of shipping crews and mining optimisation. The company primarily focuses on computational solutions, with the four main approaches being: Machine Learning, Simulation, Optimisation and Statistical analysis. With this, many different tools and coding languages are used such as Python, AWS, R, Excel and many others (most of which I was somewhat familiar with). Together, these techniques are used to provide two main services to clients; consulting and software development (although they are not mutually exclusive). Through SD, Polymathian designs programs to solve industry problems, which are either made on demand or sold out to clients. Amy works for the other arm of polymathian, consulting, in where the team of mathematicians, statisticians and programmers provide one off answers to clients tailored to their specific problem. This often involves a mix of programming and theoretical working behind the scenes, however the client is generally presented with a brief and set of results which they can apply to their problem. Amy is involved in all aspects of this process.

Through her consulting, Amy has learned how important tailoring her commination style is for different people. A mathematician, especially one working in industry, will have