

Math100

C23,C34,C35,C26

Shikun Nie

PhD student, Department of Mathematics, UBC



About myself and our section TA

- 2010-2014, *Bachelor of Science (Honors)*, **National University of Singapore**, majoring in chemistry, minor in mathematics and environmental chemistry
- 2019-2021, *Master of Science*, **National University of Singapore**, Mathematics
- 2021-now, *Doctor of Philosophy (in progress)*, **University of British Columbia**, in the field of mathematical biology, my interests are in single molecule localization microscopy.
- My current supervisor is **Prof. Daniel Coombs**



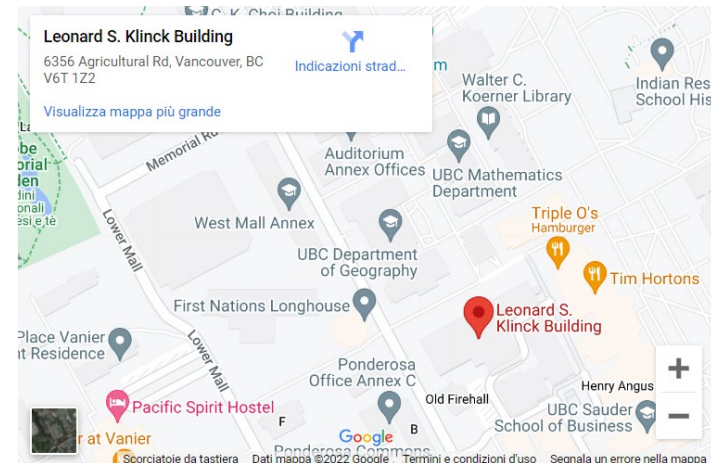
Contacts

- For questions about mathematics and homework, use ***piazza/MLC/Office hour***
- For questions related to webwork, use ***piazza***
- For questions and issues related to personal or administrative matters, use ***Calculus Contact form***
- Last resort, you may contact me directly at kennethnye@math.ubc.ca



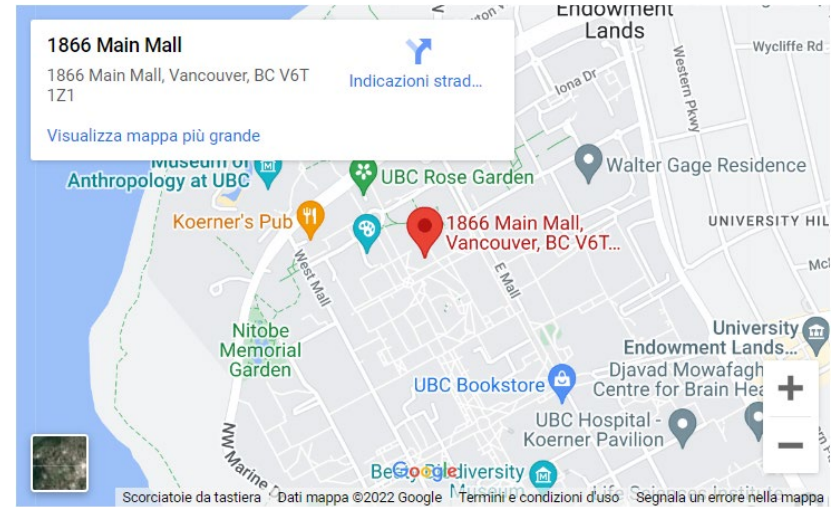
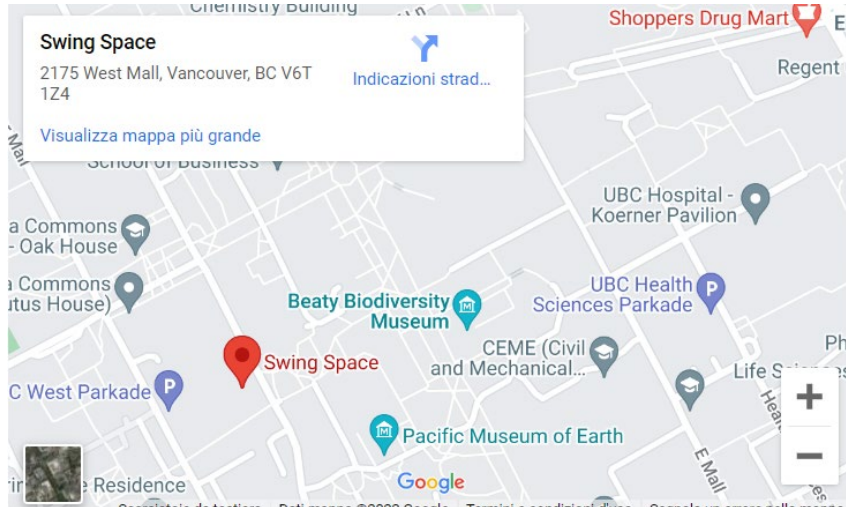
Math Learning Centre

- Drop in session, no appointment is necessary.
- Five days a week, in person day session and zoom evening session. Open even during exam period.
- Run by graduate students, each tutor has expertise in his own field of research.
- In person venue: Lenard S. Klinck Building Room 301 & 302. For online session, please check MLC Canvas page



Office Hour

- Tuesday 11:00am to 12:00nn @ SWNG 208
- Wednesday 10:30am to 11:30am @ BUCH D325
- Drop-in session, no appointment is necessary. First come first served.



Participation

- Participation worth 10% of your final grade
- (i) **Attendance** is compulsory unless with forgivable reason.
- (ii) Two take-home **practice exam**.
- (iii) Extra bonus or penalty may be considered



Warm-up: Power functions

- Power functions

$$f(x) = x^a$$

e.g.

$$y = \sqrt{x}$$

$$y = x^2$$

$$y = x^3$$

- Exponential functions

$$y = e^x$$

- Trigonometric functions

$$y = \sin x$$

$$y = \cos x$$



Graph of Hill functions

- Consider the function

$$f(x) = \frac{x^3}{5 + x^3}, x \geq 0$$



Graph of Hill functions

- DIY

$$g(x) = \frac{6x^4}{5 + x^4}, x \geq 0$$



Graph of Hill functions

- In general

$$h(x) = \frac{Ax^n}{B + x^n}, x \geq 0$$



More functions

$$\frac{x}{1+x^2}$$

$$e^x \cos x$$

$$\frac{1}{e^x + 1}$$





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