<h1 style="text-align:center">AMA 1110: Basic Mathematics I-Calculus and Probability & Statistics</h1>

**AMA 1110: Basic Mathematics I-Calculus and Probability & Statistics**
**Course Syllabus/Outline (For AMA1110 Group 101 only)**
**Semester 1, 2020/21, Poly U**

**Lecture Time/Platform:** Mon, 13:30-15:20 (We may use the Blackboard Collaborate Ultra for lecture with Zoom as a backup plan)

**Lecturer:** Dr. Yijun LOU            **Office:** TU826            **Tel:** 3400-3980

**Email:** yijun.lou@polyu.edu.hk

**Consultation:** You are welcome to contact me through email to raise your questions or make arrangements

**Tutorial:** Tutorials will be spent for quizzes and helping answer questions that arise from lecture material, or from the assignment/questions in general. There are several tutorial sessions for this subject group and please go to the **specific** one you registered.

**Course website:** Please visit the **Blackboard** system (https://learn.polyu.edu.hk/) at least once a week for important announcements, assignment questions, exercise questions and lecture notes.

**Textbook: "Foundation Mathematics and Statistics"** by KF Hung, Wilson CK Kwan and Glory TY Pong (Second edition 2013)

**Assessment** (the weighting may be subject to adjustment. Calculators approved by HKEAA are allowed to use in the test and exam):

- 30% final assessment+70% continuous assessment (2 midterm tests (15%+25%); 3 assignments 30%)
  <u>Midterm test:</u>    Test I: (Online test) Sunday Oct 11
  (tentative)          Test II: (Online test) Sunday, Nov 8
  <u>Assignments:</u> 3 assignments due on Fridays (tentatively and assignment questions will be announced around 10 days before the due date).

- <u>Final Exam:</u> Time and format will be announced later.

**Important items:**

- **<u>Subject withdrawal policy:</u>** No subject withdrawal should be approved after the add/drop period (September 7-19, 2020) unless there are strong justifications. In particular, poor continuous assessment results should not be considered as strong justifications.

- **<u>Pre-Calculus and Descriptive Statistics:</u>** If you do not have taken M1 or M2 (Extended Mathematics Modules) in secondary school, we'd like to encourage you to review some basic pre-calculus material (algebra, functions, trigonometry) in an online "Pre-Calculus and Descriptive Statistics" course by registering at the following link (free for PolyU students). You may register and take the course at the link: https://edge.edx.org/courses/course-v1:HKPolyuX+-+2017_T2/course/ (The related lecture notes are available here: https://tinyurl.com/yxsczp42)

**Material covered + tentative schedule**

*Calculus part (6.5 weeks)*

- **Chapters 1, 2:** Review of functions + trigonometric functions (2 weeks)

      - we will not cover Section 1.2 (math induction + binomial theorem).

      - we will only cover up to and including Section 2.1 in Chapter 2

- **Chapters 3:** Limits, continuity and differentiation (4.5 weeks)

      - only cover up and including Section 3.5 and the Leibniz's rule will just be stated

      - we will not cover 3.1.1 (limits of sequences)

      - in Section 3.4.4, we will also define hyperbolic and inverse hyperbolic functions

     - we will also cover implicit differentiation (in Sec. 3.4.5) and Sec. 5.3: linear approximation

*Probability + Statistics part (6.5 weeks)*

- **Chapter 10:** Probability (2.5 weeks)

     - we'll cover all the sections in this Chapter, but we might skip many details in the interest of time.

- **Chapter 11:** Probability distributions (2 weeks)

     - discrete random variables; binomial and Poisson distributions (Sec. 11.1.1 to 11.1.2 only) (1 week)

     - continuous random variables: normal + standard normal distributions; normal distr. as approximation to binomial distribution (Sec. 11.2.1 to 11.2.2 only) (1 week)

- **Chapter 12:** Sampling distributions and estimation (2 weeks)

     - Only cover up to: Sec. 12.4.2, page 392 (i.e., confidence interval for the mean when variance is know (normal dist.) and unknown (t-dist.))

**Tentative Schedule: AMA 1110 group 101**

| Lecture Number | Lecture Date | Remark |
|---|---|---|
| 1 | Sep 7 | Add/Drop period: Sep 7-19, 2020 |
| 2 | Sep 14 | Add/Drop period: Sep 7-19, 2020 |
| 3 | Sep 21 | |
| 4 | Sep 28 | |
| 5 | Oct 5 | Assignment 1 due. Test I on Sunday |
| 6 | Oct 12 | |
| 7 | Oct 19 | |
| 8 | Oct 26 | The day following Chung Yeung Festival, No lecture |
| 9 | Nov 2 | Assignment 2 due. Test II on Sunday |
| 10 | Nov 9 | |
| 11 | Nov 16 | |
| 12 | Nov 23 | Assignment 3 due |
| 13 | Nov 30 | |