GCLA 1009 University English II (3,2,1) (E)
This course, as a continuation of University English I, adopts the same approach to reinforce the learning outcomes at a more advanced level. Students will have extensive opportunities to read and listen to, as well as discuss and write about, major issues arising from each selected contemporary theme. Students will learn to read and analyse the issues critically and from multiple perspectives to gain a deeper understanding and insight, and to present their arguments and points of view convincingly in class and in writing. Advanced academic and professional skills (synthesizing, debating, panel discussion, etc.) are distributed and explicitly practised in the course.

GCNU 1005 Beating the Odds (3,3,0) (E)
This course begins with a list of well-selected and counterintuitive examples to help students become aware of the existence of mathematics in every aspect of our lives. Chance plays a huge part in life; one will have a better management of risk and opportunities and hence higher odds to become a winner in life if he knows more about how probability works. Rather than focusing on calculating a few specific combinations or permutations, which are tiresome and tedious to most, this course uses real-life situations as incentives and utilizes mathematics as a tool to figure out the "Best Bet" in some everyday problems. Casinos and games are topics commonly seen in probability; after equipping students with the knowledge necessary for identifying the "Best Bet", we move on to a very practical problem—knowing that the chance of winning is 99.9%, how much should we invest on this "Best Bet"? Our investigations (not the formulas and calculations) are then extended to cover more real-life situations in which its odds cannot be predicted by counting techniques. Students will discover new ways of expressing known information, connecting reality to math, applying meta-tools to predict chances, and making statistically-justifiable decisions.

GCNU 1006 Discovering Hong Kong by Statistical Software (3,3,0) (E)
This course serves as an introduction to statistical analysis, engaging basic descriptive statistics and advanced regression models. Students often memorize the relevant equations and symbols without understanding the reasoning and motivations behind them, which is not a student-friendly approach to learning statistics. Here, we skip all of the hard statistical ideas in distribution, formulas or calculus, which differs from traditional courses targeting major-students. Rather, this course is concerned with the logical processes involved in obtaining answers. Statistical software is useful in helping students grasp the underlying concepts involved. Students are able to follow the appropriate steps and engage with the innovative pedagogy. This course uses examples from real-life situations and local data, rather than complicated calculations, to guide students in building a strong foundation in statistical thinking, which enables them to develop problem-solving techniques and to criticize statistical arguments. This course can also open up a window into the use of statistics, which will encompass not only simple descriptive statistics, but also other influential methods including statistical tests. Ultimately, students will conceptually come to know more about statistical tests than their mouse-clicking counterparts.

GCNU 1007 Estimating the World (3,3,0) (E)
This course begins by introducing the motivations behind why we need to estimate. While simple estimations can be done easily with pen and paper, more complicated ones will require the help of modern computing algorithms. To become proficient in computing, students will learn the differences between familiar mathematical operators (i.e. addition, subtraction, multiplication and division) and operations (i.e. square root and exponential), as well as the corresponding operators and operations built into computers. Equipped with the "computational senses", students (who are assumed to have no previous exposure to calculus and linear algebra) will be introduced to several carefully selected numerical methods applicable to real-life applications, which are simulated with the aid of the popular mathematical software MATLAB. Similar to how today's researchers approach research topics and handle newly invented algorithms, we will adopt a step-by-step investigative experimental approach instead of a theoretical one. This course will guide students to experience and understand the essence of estimation via computing by building links to several basic mathematical ideas, such as sequences and limits. Although numerical methods covered in this course are limited, their applications to real-life problems are not. This course aims to transform the next generation of citizens in Hong Kong from a fact-consumer into informed question-asker, with topics such as, "How can I estimate the Gini index for Hong Kong using basic facts and data?", "How polluted is the air inside the cross harbor tunnel?" and "Taking inflation into account, is the cost of raising a child in Hong Kong really $4 million?" Under this course, logical thinking and scientific reasoning combined with hands-on experiment will allow students to verify the trustworthiness of quantitative estimations reported in the news and its impact on daily life.

GCNU 1015 Manage Your Money without Formulas (3,3,0) (E)
This course begins with an introduction to different types of interest arisen in e.g. savings, student loans, credit cards, mortgages and life insurance policies, followed by basic growth models and the more complicated annuity models commonly found in Hong Kong. An EXCEL Tutorial will also be included in order to introduce the computer skills needed to model and solve problems using EXCEL spreadsheets. We will also cover more advanced ideas including forecasting trends in interest rates, estimating the market-price behavior, and carrying out simulations. This knowledge will allow students to select the best deals from the overwhelming number of plans offered by Hong Kong financial institutions. Local examples not only provide a sense of familiarity for students, but also make the skills acquired in this course applicable to Hong Kong situations. These examples will help build a strong foundation in logical thinking and problem solving and enable students to use cost-benefit analysis as a decision-making tool in their daily lives. We hope this course will help students learn to enjoy using mathematics in real life.

GCNU 1016 Mathematics around Us (3,3,0) (E)
This course aims to "make sense" of the mathematical topics Hong Kong students spend years to learn (mainly for examinations). Although the compact syllabus in high school makes good use of students' golden learning years to improve their calculation skills, the standalone and often unrelated topics can result in a lack of connections and linkages to real-life. Students may wrestle with abstract mathematical concepts and robotic calculations that appear to be unpractical. To change the already-frustrated students' view towards mathematics and allow them to enjoy and benefit from mathematics, a deeper understanding of both the foreground (i.e. real-life applications around us) and background (i.e., motivation and origin) must be provided. Don't let years of efforts end in vain! This course begins with the mathematical logic in our daily conversions. This practical opening provides students a sense of familiarity and allows them to gradually see the usefulness of mathematics. To answer a common question from students, "Why am I learning this?", The interconnections between high school geometry, trigonometry functions (i.e. sin, cos, and tan), Pi, nature numbers, and complex numbers will be built from a historical and practical point of view. The applications of these high school topics in daily life and beyond will also be presented, in the hopes that they may capture students' imaginations.

GCNU 1017 Mathematics of Fairness (3,3,0) (E)
This course begins with an introduction to the way in which statistical information can be used to interpret and affect election phenomena and other everyday issues. Students will learn a number of election systems and address the problem of finding the