IB Mathematics: Applications and Interpretation SL **Ms. Lei**
2020 – 2021 Course Syllabus **Room: 3222**

Dear Students,

Welcome to IB Mathematics: Applications and Interpretations! I look forward to an exciting and memorable year with you. From probability and statistics to logic and financial mathematics, this course covers a variety of fascinating topics that have practical applications in the real world. My goal this year is to not only help you pass the IB Assessments, but also develop skills that will be valuable in higher education: self-discipline, self-confidence, rigorous habits of mind, problem solving skills, international-mindedness and a love of learning. To ensure your success in this class, please acquaint yourself with the following guidelines:

I. Expectations

Be kind to yourself and others
Approach every challenge with a growth mindset and a positive attitude
Respect our time together
Take pride in your work

II. Student Conduct

A. Before class begins
1. Have book, computer, paper and calculator ready. Sharpen pencils if you need to.
2. Cell phones and headphones must be on silent/off and removed from the work area.
3. Home Learning (HL) folders will be handed out. Place last night's HL in the folder to be collected and remove graded materials.

B. Virtual meetings
1. Turn on camera for the full duration of meeting.
2. Keep microphones muted unless you have a comment or question.
3. Understand that virtual platforms are not private. Exercise discretion when making posts/comments online.
4. Wear school uniforms during live sessions. No uniform results in a uniform violation for that day.

C. While teacher is talking
1. Listen to explanations.
2. Take clear and concise notes (you will need them later).
3. Do not disturb your neighbor.
4. Raise your hand to answer and ask questions.

D. Hall Passes
1. Bathroom passes will be granted only in emergencies. Sign out with your name, date and time left/returned on the bathroom sign out sheet when you leave.
2. NO passes the first/last 15 minutes of class.
3. Only one student is allowed out at a time.
4. Always ask for permission to leave the class.

E. Exiting the classroom
1. Double check you have written down the HL.
2. You are responsible for keeping the classroom neat for the next period. Please throw away trash.
3. Return all textbooks and turn in your HL folder if you have not done so already.
4. Remain seated until the teacher dismisses the class.

F. Failure to abide by the above guidelines will result in the following:
1. Drop in participation points
2. Lunch detention
3. Phone call home
4. Referral

III. Materials

3-ring binder or notebook with dividers as follows: 1. Class Notes 2. Class Work 3. Home Learning 4. IA Project
Loose leaf paper, pencil and red pen for corrections
A TI-Nspire graphing calculator (90 day trial: http://ti-enews-education.ti.com/Nspire-teacher-software)

IV. Academic Policy

Grade Distribution		***Scale***	
Homes Learning	10%	90 - 100%	A
Class Work	20%	80 - 89%	B
Quizzes/Projects	30%	70 - 79%	C
Exams	40%	60 - 69%	D
		50 - 59%	F

*****Show all work on assignments and exams. Remember: No Work Means No Credit!*****

Academic Integrity

Cheating on exams and quizzes are STRICTLY FORBIDDEN and will result in an automatic "F".

Home Learning

An essential part of your success in this course and beyond, HL provides you with an excellent opportunity to practice with new material covered in class. HL is graded on a four-point scale. Up to three points may be deducted for an incomplete assignment, and one point is deducted for late assignments. To receive FULL credit for a HL assignment, you must:

1. Show ALL supporting work. Remember, your work will be assessed during the IB exam.
2. Complete the entire assignment on time. Late work is accepted for a grade lower.
3. HL assignments are checked for completion and correctness.
4. Submit assignments to me through the Assignment tool on K12 or under Assignments on Teams, unless they are scored by the computer. Assignments sent by e-mail will not be accepted unless you've made prior arrangements with me.

V. Attendance/ Tardies

1. Cameras must be on for attendance to be taken. You will be marked absent if you complete daily assignments but do not log into live sessions.
2. You will be marked tardy if you are not present at the moment attendance is taken.
3. All work missed during an excused absence may be made up. Time allowed for making up work depends on the number of days absent. It is your responsibility to check assignments on the student portal for make up work.
4. If you are absent on an exam day, you must present a permissible admit in order make up the exam.
5. Ten unexcused absences will result in an NC (NO CREDIT) grades in an annual course, five in a semester course.
6. PLEASE BE ON TIME. If the door is closed, you need to obtain a pass from either the office (for 1st period) or from your previous teacher.
7. Excessive tardies (5 or more per nine weeks, both excused and unexcused) will result in either a phone call home or a referral.

Note: Attendance is extremely important for your success in this course. If for any reason you are absent (including Field Trips, Practices, Rehearsals, etc.), it is your responsibility to obtain lecture notes from a classmate and make up ALL missed assignments. It is also your responsibility to acquire any handouts that might have been distributed. I strongly urge you to not be absent for this math class because catching up can become an overwhelming process.

VI. Contact Information

The best way to contact me is via e-mail at: **jlei.studio@gmail.com**
Google Voice: **(786) 248 – 1795**
Class website: **leisdsh.weebly.com**
Remind: text the code **@gbek947** to **81010**

I will also be arranging optional (but highly recommended!) tutoring and review sessions in the weeks leading up to the IB Exam. Stay tuned! I hope you will have a productive year, and I'm excited to get to know each and every one of you!

Sincerely,

Ms. Lei

IB Mathematics: Applications and Interpretation SL
Course Outline

Aug. – Sep.	**Topic 1** **Numbers and Algebra** 16 hours Begin IA Project	1.1 Scientific notation 1.2 Arithmetic sequences and series 1.3 Geometric sequences and series 1.4 Financial applications of geometric sequences and series: compound interest; annual depreciation 1.5 Law of exponents; introduction to logarithms 1.6 Significant figures, rounding, percentage error 1.7 Amortization and annuities 1.8 Using technology to solve: systems of linear equations up to three variables and polynomial equations
Oct. – Nov.	**Topic 4** **Statistics and Probability** 36 hours Oct. Background and Statement of Task Due Nov. IA Mathematical Processes Due	4.1 Sampling 4.2 Presentation of data; histograms; cumulative frequency; box and whisker diagrams 4.3 Measures of central tendency and dispersion 4.4 Linear correlation; PPMCC; scatter diagrams; regression line 4.5 Introduction to probability 4.6 Use of Venn diagrams, tree diagrams, sample space diagrams and tables of outcomes to calculate probability; conditional probability 4.7 Concept of discrete random variables and their probability distributions 4.8 Binomial distribution 4.9 Normal distribution 4.10 Spearman's rank correlation coefficient 4.11 Hypothesis testing: χ^2 test for independence, χ^2 goodness of fit test and *t*-test
Dec.	**Topic 3**	3.1 Distance on a coordinate plane; volume and surface area; size of an angle

	Geometry and Trigonometry 18 hours IA Rough Draft Due	3.2 Right triangle trigonometry; law of sines; law of cosines; area of a triangle 3.3 Applications of trigonometry, angle of elevation and depression 3.4 The circle: length of an arc; area of a sector 3.5 Equations of perpendicular bisectors 3.6 Voronoi Diagrams
Jan. – Feb.	**Topic 2** **Functions** 31 hours Revision of IA Projects IA Final Draft Due	2.1 Linear Functions, gradient, parallel and perpendicular lines, forms of the equation of a line 2.2 Functions and Inverse Functions 2.3 Graph of functions 2.4 Key Features of graphs, finding intersections using technology 2.5 Modeling: linear, quadratic, exponential and decay, direct/inverse, cubic, sinusoidal 2.6 Developing and applying modeling skills
Mar.	**Topic 5** **Calculus** 19 hours	5.1 Introduction to limits and derivatives 5.2 Increasing and decreasing functions 5.3 Finding derivatives using the power rule 5.4 Equation of tangent and normal lines 5.5 Introduction to integration; basic antidifferentiation; definite integrals 5.6 Stationary points; local maximums and minimums 5.7 Optimization 5.8 Approximating areas using the trapezoidal rule
Apr.	Review for the IB Exam	

Virtual Tools

Remind: text the code **@gbek947** to **81010**

Email: jlei.studio@gmail.com

Website: leisdsh.weebly.com

Calculator Trial (TI-Nspire): https://education.ti.com/en/downloads/trial-software

IB Math Textbook Trial:
https://en.calameo.com/read/00077772178a08dc27fb2?authid=5vt7vRsbuykb&region=international

Virtual Platforms:

1. **Microsoft Teams**
   Login through student portal using StudentID@students.dadeschools.net
   Quick Guide here:
   http://distancelearning.dadeschools.net/downloads/Microsoft%20Teams%20for%20Students-Quick%20Start%20Guide.pdf

2. **ManageBac**

3. **K12 - My School Online**

4. **Edpuzzle**
   https://edpuzzle.com/join/ivuihow
   Join Code: **ivuihow**

5. **Desmos**
   https://student.desmos.com/

6. **Nearpod**
   https://nearpod.com/

7. **Kahoot**
   https://kahoot.it/

2020-2021

Please return signed contract by _____

To be filled out by students:

I, _____, have read the IB Mathematics: Applications and Interpretation guidelines and expectations, and have discussed them with my parents. They were also explained to me by my teacher. I understand that meeting expectations, following the instructions, and abiding by the rules in this class is of utmost importance to my learning in this course. I intend to put forth my maximum effort to comply with these guidelines in a respectful manner, understanding my success depends mainly on disciplined work ethic and a positive attitude.

Student Signature _____. Date _____.

To be filled by parent(s) or guardian:

Dear Parents,

A productive and exciting school year lies ahead of us. Your support is always greatly appreciated, and I hope to be in touch with you throughout the year. Should you have any questions, please feel free to e-mail me at **jlei@dadeschools.net**, or call at **(786) 248 – 1795.**

Parent(s) or guardian name: _____

☐ E-mail:_____

☐ Home Phone #: _____ Cell Phone # (if different): _____

Please also indicate your preferred form of contact.

Parent (Guardian) Signature _____. Date _____.