Course Name	IB Mathematical Studies SL	Course Code	27.2524001
School Name	Tucker High School	Teacher Name	Janine M. Bates
School Phone Number	678-874-3810	Teacher Email	Janine_Bates@dekalbschoolsga.org
School Website	www.tuckerhs.dekalb.k12.ga.us	Teacher Website	batesTHS.weebly.com

COURSE DESCRIPTION: This course is available only at standard level, and is equivalent in status to mathematics SL, but addresses different needs. It has an emphasis on applications of mathematics, and the largest section is on statistical techniques. It is designed for students with varied mathematical backgrounds and abilities. It offers students opportunities to learn important concepts and techniques and to gain an understanding of a wide variety of mathematical topics. It prepares students to be able to solve problems in a variety of settings, to develop more sophisticated mathematical reasoning and to enhance their critical thinking. The individual project is an extended piece of work based on personal research involving the collection, analysis and evaluation of data. Students taking this course are well prepared for a career in social sciences, humanities, languages or arts. These students may need to utilize the statistics and logical reasoning that they have learned as part of the mathematical studies SL course in their future studies.

The course syllabus focuses on important mathematical topics that are interconnected. The syllabus is organized and structured with the following tenets in mind: placing more emphasis on student understanding of fundamental concepts than on symbolic manipulation and complex manipulative skills; giving greater emphasis to developing students' mathematical reasoning rather than performing routine operations; solving mathematical problems embedded in a wide range of contexts; using the calculator effectively.

The course includes project work, a feature unique to mathematical studies SL within group 5. Each student completes a project, based on their own research; this is guided and supervised by the teacher. The project provides an opportunity for students to carry out a mathematical study of their choice using their own experience, knowledge and skills acquired during the course. This process allows students to take sole responsibility for a part of their studies in mathematics.

The students most likely to select this course are those whose main interests lie outside the field of mathematics, and for many students this course will be their final experience of being taught formal mathematics. All parts of the syllabus have therefore been carefully selected to ensure that an approach starting from first principles can be used. As a consequence, students can use their own inherent, logical thinking skills and do not need to rely on standard algorithms and remembered formulae. Students likely to need mathematics for the achievement of further qualifications should be advised to consider an alternative mathematics course.

Owing to the nature of mathematical studies SL, teachers may find that traditional methods of teaching are inappropriate and that less formal, shared learning techniques can be more stimulating and rewarding for students. Lessons that use an inquiry-based approach, starting with practical investigations where possible, followed by analysis of results, leading to the understanding of a mathematical principle and its formulation into mathematical language, are often most successful in engaging the interest of students. Furthermore, this type of approach is likely to assist students in their understanding of mathematics by providing a meaningful context and by leading them to understand more fully how to structure their work for the project.

AIMS: The aims of IB Mathematical Studies SL are to enable students to:
1. enjoy mathematics, and develop an appreciation of the elegance and power of mathematics
2. develop an understanding of the principles and nature of mathematics
3. communicate clearly and confidently in a variety of contexts
4. develop logical, critical and creative thinking, and patience and persistence in problem-solving
5. employ and refine their powers of abstraction and generalization
6. apply and transfer skills to alternative situations, to other areas of knowledge and to future developments

7. appreciate how developments in technology and mathematics have influenced each other
8. appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics
9. appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives
10. appreciate the contribution of mathematics to other disciplines, and as a particular "area of knowledge" in the TOK course.

ASSESSMENT OBJECTIVES: Problem-solving is central to learning mathematics and involves the acquisition of mathematical skills and concepts in a wide range of situations, including non-routine, open-ended and real-world problems. Having followed a DP mathematical studies SL course, students will be expected to demonstrate the following.

1. **Knowledge and understanding**: recall, select and use their knowledge of mathematical facts, concepts and techniques in a variety of familiar and unfamiliar contexts.
2. **Problem-solving**: recall, select and use their knowledge of mathematical skills, results and models in both real and abstract contexts to solve problems.
3. **Communication and interpretation**: transform common realistic contexts into mathematics; comment on the context; sketch or draw mathematical diagrams, graphs or constructions both on paper and using technology; record methods, solutions and conclusions using standardized notation.
4. **Technology**: use technology, accurately, appropriately and efficiently both to explore new ideas and to solve problems.
5. **Reasoning**: construct mathematical arguments through use of precise statements, logical deduction and inference, and by the manipulation of mathematical expressions.
6. **Investigative approaches**: investigate unfamiliar situations involving organizing and analyzing information or measurements, drawing conclusions, testing their validity, and considering their scope and limitations.

CURRICULUM OVERVIEW

Syllabus Component All topics are compulsory. Students must study all the sub-topics in each of the topics in the syllabus as listed in the course subject guide. Students are also required to be familiar with the topics listed in the guide as prior learning. Copies of all pertinent IB Mathematical Studies SL documents can be found on my website (batesTHS.weebly.com).	Teaching Hours
Topic 1 Number and algebra	20 (5 weeks)
Topic 2 Descriptive statistics	12 (3 weeks)
Topic 3 Logic, sets and probability	20 (5 weeks)
Topic 4 Statistical applications	17 (4-5 weeks)
Topic 5 Geometry and trigonometry	18 (4-5 weeks)
Topic 6 Mathematical models	20 (5 weeks)
Topic 7 Introduction to differential calculus	18 (4-5 weeks)
Project (The project is an individual piece of work involving the collection of information or the generation of measurements, and the analysis and evaluation of the information or measurements. Time will be allotted in class weekly to work on the project.)	25
Total teaching hours	**150**

ASSESSMENT OUTLINE

Assessment Component	Weighting
External assessment (3 hours)	**80%**
Paper 1 (1 hour 30 minutes) 15 compulsory short-response questions based on the whole syllabus. (90 marks)	40%
Paper 2 (1 hour 30 minutes) 6 compulsory extended-response questions based on the whole syllabus. (90 marks)	40%
Internal assessment This component is internally assessed by the teacher and externally moderated by the IB at the end of the course. **Project** The project is an individual piece of work involving the collection of information or the generation of measurements, and the analysis and evaluation of the information or measurements. (20 marks)	**20%**

BOARD-APPROVED INSTRUCTIONAL MATERIALS

Title	Mathematics for the international student: Mathematical Studies SL – 3rd Edition
ISBN	978-1-921972-05-8
Replacement Cost	*Students will be issued CD versions of the textbook for home use, and I will
Online book and/or resources	maintain a classroom set of physical textbooks for school use.

TUCKER HIGH SCHOOL TEXTBOOK POLICY – ACCESS FOR ALL

With the academic, logistic, and health concerns of all Tucker High School students in mind, Tucker has adopted the following textbook policy under the guidance of THS administration and the contributions provided by the Parent Textbook Advisory Board.

1. Each classroom has a full hardcopy set of textbooks for each course that is taught. There are sufficient textbooks to allow a 1:1 student to textbook ratio for each class.
2. Each student has access to a digital copy of his/her courses' textbooks either in CD/DVD format or via online access.
   a. For students without computers and/or internet access at home, computer and internet access at the school is provided in the library during Enrichment period, lunch, and before and after school.
   b. Students are held accountable for any and all CD/DVD resources that they request from their teacher and take out of the classroom.
   c. Please address any digital access requests directly to the Assistant Principal or other THS Administrator responsible for textbooks.
3. Any student who prefers a hard copy of his/her textbook for any class shall be given one for home use for the duration of their course.
   a. There are sufficient textbooks available for all students who make this request.
   b. Students are held accountable for returning these home-issued textbooks and will be charged for damaged and/or lost textbooks.

It is the intent of Tucker High School to provide instructional resource access to each student in the method that is most advantageous and most convenient for each individual student.

GRADING SYSTEM

The DeKalb County School District believes that the most important assessment of student learning shall be conducted by the teachers as they observe and evaluate students in the context of ongoing classroom instruction. A variety of approaches, methodologies, and resources shall be used to deliver educational services and to maximize each student's opportunity to succeed. Teachers shall evaluate student progress, report grades that represent the student's academic achievement, and communicate official academic progress to students and parents in a timely manner through the electronic grading portal. **See Board Policy IHA**.

Grading Categories	*Grading Protocol		
Formative Assessment – 0%	A	90 - 100	~**P** (pass)
Assessment During Learning – 25%	B	80 - 89	~**F** (fail)
Guided, Independent, or Group Practice – 45%	C	71-79	

| Summative Assessment or Assessment of Learning – 30% | D | 70 |
| | F | Below 70 |

DISTRICT EXPECTATIONS FOR SUCCESS

STUDENT PROGRESS	Semester progress reports shall be issued four and a half, nine and thirteen and a half weeks into each semester. The progress of students shall be evaluated frequently and plans shall be generated to remediate deficiencies as they are discovered. Plans shall include appropriate interventions designed to meet the needs of the students. **See Board Policy IH.**
ACADEMIC INTEGRITY	Students will not engage in an act of academic dishonesty including, but not limited to, cheating, providing false information, falsifying school records, forging signatures, or using an unauthorized computer user ID or password. **See the Code of Student Conduct - Student Rights and Responsibilities and Character Development Handbook.**
HOMEWORK	Homework assignments should be meaningful and should be an application or adaptation of a classroom experience. Homework is at all times an extension of the teaching/learning experience. It should be considered the possession of the student and should be collected, evaluated and returned to the students. **See Board Policy IHB.**
MAKE-UP WORK DUE TO ABSENCES	When a student is absent because of a legal reason as defined by Georgia law or when the absence is apparently beyond the control of the student, the student shall be given an opportunity to earn grade(s) for those days absent. Make-up work must be completed within the designated time allotted. **See Board Policy IHEA.**

SCHOOL EXPECTATIONS FOR SUCCESS

CLASSROOM EXPECTATIONS	- Students are expected to be prepared and attend class daily. - They are required to abide by the Student Code of Conduct, the Tucker High School Behavior Policies, Classroom Rules, and all teacher/administrator instructions.
MATERIALS AND SUPPLIES	1 ½ inch 3- Ring Binder with 5 dividers & paper #2 pencils with erasers - Highlighters - Glue sticks - TI-84 Plus CE Graphing Calculator (I would recommend purchasing this calculator so students may practice using it at home; **however, if the price is unreasonable** a set of these calculators is <u>always</u> available in my classroom for school use. Students should be able to use free online graphing calculators for home use when necessary.)
EXTRA HELP	Tutorials Tuesdays from 3:30-4:15 (or as requested in advance)
PARENTS AS PARTNERS	In order to achieve success, students, parents, and teachers need to act as a team. I will maintain open lines of communication through phone, email and my website. There will also be Unit Plans accompanying each unit in class, providing an overview, a calendar, a list of standards, and helpful websites. Please help to ensure that your child is prepared every day for class. If they have all their materials, are current of their homework, and are staying organized, they will be successful in class.

Sign below and return to indicate that you have read the syllabus for Ms. Bates' IB Mathematical Studies SL class.

Student Signature_____ Date _____

Parent/Guardian Signature_____ Date _____

Please provide this additional information to support continued contact:

	Parent/Guardian Contact Information
Print First & Last Name(s)	
Day Time Phone Number(s)	
Cellular Phone Number(s)	
Email Address(es)	

Sign below and return to indicate that you have read the syllabus for Ms. Bates' IB Mathematical Studies SL class.

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