



Dominican International School

台北市私立道明外僑學校

No. 76, Dazhi Street, Taipei (104042), Taiwan, R.O.C.

10464 臺北市中山區大直街 76 號



COURSE SYLLABUS

School Year	2026 - 2027
Subject	PreCalculus
Grade Level	11
Teacher	Ms. Yvonne Lee
Email	ylee@dishs.tp.edu.tw

COURSE DESCRIPTION:

Pre-Calculus serves as a transition between algebra and calculus. This course covers many important fundamental concepts that will prepare students for calculus and college-level mathematics. Students are expected to understand, analyze, and utilize basic functions. They are also expected to understand the relationship between exponential functions and logarithms. Trigonometric functions and identities will be included and students are expected to graph and analyze graphs and prove identities. Analytic geometry in two dimensions and discrete mathematics will also be covered.

COURSE OBJECTIVES: By the end of the semester/school year, (SWAT) Students will be able to:

CCSS: Mathematics

CCSS: HS: Algebra

Seeing Structure in Expressions

HSA-SSE.A. Interpret the structure of expressions.

HSA-SSE.B. Write expressions in equivalent forms to solve problems.

CCSS: HS: Functions

Interpreting Functions

HSF-IF.B. Interpret functions that arise in applications in terms of the context.

HSF-IF.C. Analyze functions using different representations.

Linear, Quadratic, and Exponential Models

HSF-LE.A. Construct and compare linear and exponential models and solve problems.

HSF-LE.B. Interpret expressions for functions in terms of the situation they model.

Trigonometric Functions

HSF-TF.A. Extend the domain of trigonometric functions using the unit circle.

HSF-TF.B. Model periodic phenomena with trigonometric functions.



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CCSS: HS: Num/Quantity

Vector & Matrix Quantities

HSN-VM.A. Represent and model with vector quantities.

HSN-VM.B.4b. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.

HSN-VM.C. Perform operations on matrices and use matrices in applications.

HSN-VM.C.6. (+) Use matrices to represent and manipulate data, e.g., to represent

CCSS: HS: Functions

Trigonometric Functions

HSF-TF.C. Prove and apply trigonometric identities.

HSF-TF.C.8. Prove the Pythagorean identity $\sin^2(x) + \cos^2(x) = 1$ and use it to calculate trigonometric ratios.

HSF-TF.C.9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

CCSS: HS: Geometry

Similarity, Right Triangles, & Trigonometry

HSG-SRT.C. Define trigonometric ratios and solve problems involving right triangles

HSG-SRT.C.7. Explain and use the relationship between the sine and cosine of complementary angles.

HSG-SRT.D. Apply trigonometry to general triangles

HSG-SRT.D.10. (+) Prove the Laws of Sines and Cosines and use them to solve problems.

HSG-SRT.D.11. (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Expressing Geometric Properties with Equations

HSG-GPE.A. Translate between the geometric description and the equation for a conic section

CCSS: HS: Stats/Probabilities

Using Probability to Make Decisions

HSS-MD.A. Calculate expected values and use them to solve problems

Mathematical Practice

MP. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

MP.1. Make sense of problems and persevere in solving them.

MP.2. Reason abstractly and quantitatively.

MP.4. Model with mathematics.

MP.5. Use appropriate tools strategically.



PRIMARY TEXTBOOKS AND OTHER RESOURCES:

- Textbook – Ron Larson, Paul Battaglia. PreCalculus with Limits: A Graphing Approach 8th ed. 2020.
- Ti-nspireCX Graphing calculator
- Khan Academy

GRADING SYSTEM/ASSESSMENT:

1. Tests and Pop Quizzes	30%
2. Homework/Classwork/Seatwork /Projects	30%
3. Quarterly Exam	30%
4. Deportment	<u>10%</u>
Total Grade	100%

ADDITIONAL INFORMATION:

Please always check Google Classroom for homework and announcements.

ACADEMIC DISHONESTY:

Academic Dishonesty means employing a method or technique or engaging in conduct in an academic endeavor that contravenes the standards of ethical integrity expected at DIS.

Academic dishonesty includes but is not limited to the following:

- Purposely incorporating the ideas, words of sentences, paragraphs, or parts thereof without appropriate acknowledgment and representing the product as one's work;
- Representing another's intellectual work, such as photographs, paintings, drawings, sculpture, research, or the like, as one's own, including failure to attribute content to an AI.
- Employing a tutor, using Artificial Intelligence without acknowledgment, getting a parent to write a paper or do an assignment, and paying for an essay to be written by someone else and presented as the student's work.
- Committing any act that a reasonable person would conclude, when informed of the evidence, to be a dishonest means of obtaining or attempting to obtain credit for academic work.

Any act of academic dishonesty will result in an automatic zero on the entire assignment/learning task.



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First Quarter Tentative Course Content

Week/Date	Topic/Projects/Assessments
Week 1 (Aug 11-14) <u>4 days of class</u> 11 Morning Assembly 14 Opening Mass & Assumption of Our Lady 8:00	1.1 Lines in the Plane 1.2 Functions
Week 2 (Aug 17-21)	1.3 Graphs of Functions 1.4 Shifting, Reflecting, and Stretching Graphs
Week 3 (Aug 24-28)	1.5 Combinations of Functions 1.6 Inverse Functions 1.7 Linear Models and Scatter Plots
Week 4 (Aug 31-Sep 4)	Chapter 1 Test 2.1 Quadratic Functions 2.2 Polynomial Functions of Higher Degree
Week 5 (Sep 7-11) 7 Holy Mass 8:00	2.3 Real Zeros of Polynomial Functions 2.4 Complex Numbers
Week 6 (Sep 14-18)	2.5 The Fundamental Theorem of Algebra 2.6 Rational Functions and Asymptotes
Week 7 (Sep 21-25) 22-24 Pre-Exam Days 25 Moon Festival (Public Holiday)	2.7 Graphs of Rational Functions 2.8 Quadratic Models
Week 8 (Sep 28-Oct 2) Sep 28 Confucius Day (Public Holiday) Oct 1-2 First Quarter Exam (half day)	Quarter Exam
Week 9 (Oct 5-9)	Teacher's Conference (Oct 6-8) 5 Record Day (Student Holiday) 6 Teachers Conference Mass (Student Holiday) 9 Double 10 (Public Holiday)



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Second Quarter Tentative Course Content

Week/Date	Topic/Projects/Assessments
Week 1 (10) (Oct 12-16)	4.1 Radian and Degree Measure 4.2 Trigonometric Functions: The Unit Circle
Week 2 (11) (Oct 19-23)	4.3 Right Triangle Trigonometry 4.4 Trigonometric Functions of Any Angle Quiz: 4.1 – 4.4
Week 3 (12) (Oct 26-30) 25-26 Retrocession Day (Public Holiday)	4.5 Graphs of Sine and Cosine Functions 4.6 Graphs of Other Trigonometric Functions
Week 4 (13) (Nov 2-6) 2 All Soul's Day Mass 8:00	4.7 Inverse Trigonometric Functions 4.8 Applications and Models Chapter 4 Test
Week 5 (14) (Nov 9-13)	5.1 Using Fundamental Identities 5.2 Verifying Trigonometric Identities
Week 6 (15) (Nov 16-20)	5.3 Solving Trigonometric Equations 5.4 Sum and Difference Formulas
Week 7 (16) (Nov 23-27) 24-26 Pre-Exam Days 27 G12 Second Quarter Exam	5.5 Multiple-Angle and Product-to-Sum Formulas Chapter 5 Test
Week 8 (17) (Nov 30-Dec 4) 30 G12 Second Quarter Exam	6.1 Law of Sines 6.2 Law of Cosines
Week 9 (18) (Dec 7-11) 8 Foundation Day Mass 9:00, Cake Ceremony, Christmas Fair (Whole day) 10-11 Second Quarter Exam (half day)	Quarter Exam
<i>December 14 to January 1 Christmas Break</i>	



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Third Quarter Tentative Course Content

Week/Date	Topic/Projects/Assessments
Week 1 (19) (Jan 4-8) 4 Record Day (Student Holiday) 8 New Year Mass 8:00	6.3 Vector in the Plane 6.4 Vectors and Dot Products
Week 2 (20) (Jan 11-15)	6.3 – 6.4 Quiz 3.1 Exponential Functions and Their Graphs 3.2 Logarithmic Functions and their Graphs
Week 3 (21) (Jan 18-22)	3.3 Properties of Logarithms 3.4 Solving Exponential and Logarithmic Equations
Week 4 (22) (Jan 25-29) 28 Feast Day of St. Thomas Aquinas	3.5 Exponential and Logarithmic Models 3.6 Nonlinear Models Chapter 3 Test
Week 5 (23) (Feb 1-5) 4-5 Little New Year's Eve (Public Holiday)	7.1 Solving Systems of Equations 7.2 Systems of Linear Equations in Two Variables
<i>February 16-20 Chinese New Year Holiday</i>	
Week 6 (24) (Feb 15-19)	7.3 Multivariable Linear Systems 7.4 Matrices and Systems of Equations
Week 7 (25) (Feb 22-26) 22-26 IOWA Assessments	7.5 Operations with Matrices 7.6 The Inverse of Square Matrix
Week 8 (26) (Mar 1-5) 1 Memorial Day (Public Holiday) 2-4 Pre-Exam Days	7.7 The Determinant of a Square Matrix 7.8 Applications of Matrices and Determinants Chapter 7 Test
Week 9 (27) (Mar 8-12)	8.1 Sequences and Series 8.2 Arithmetic Sequences and Partial Sums



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Week 10 (28) (Mar 15-19)	8.3 Geometric Sequences and Series Quiz 8.1 – 8.3
Week 11 (29) (Mar 22-26) 23-24 Third Quarter Exam (half day) 25-26 Easter Break (Spring Break)	23-24 Third Quarter Exam (No Class) 25-26 Easter Break (No Class)
<i>Mar 25-Apr 2 Easter & Spring Break</i>	

Fourth Quarter Tentative Course Content

Week/Date	Topic/Projects/Assessments
Week 1 (30) (Apr 5-9) 5 Tomb Sweeping Day (Public Holiday) 6 Children's Day (Public Holiday)	8.4 The Binomial Theorem 8.5 Counting Principles
Week 2 (31) (Apr 12-16)	8.6 Probability
Week 3 (32) (Apr 19-23) 19-23 AP Mock Exams	Chapter 8 Test 9.1 Circles and Parabolas 9.2 Ellipses
Week 4 (33) (Apr 26-30) 27-29 Pre-Exam Days 30 Labor Day (Public Holiday)	9.3 Hyperbola and Rotation of Conics 9.4 Parametric Equations Quiz: 9.1 – 9.3
Week 5 (34) (May 3-7) 3-7 Final Exams (K, G5, 8, & 12) 3-14 AP Exams	9.5 Polar Coordinates



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Week 6 (35) (May 10-14) 3-14 AP Exams 12-13 Fourth Quarter Exam- Undergraduate (half day) 14 Record Day (Student Holiday)	Quarter Exam
Week 7 (36) (May 17-21) 17 G12 Recollection (Morning) 17 Baccalaureate Mass (Afternoon, Schoolwide) 19 House Sports Day 20 High School Field Trip 21 House Culminating Activity 17-21 Student Clearance Days & Special Events	Clearance and Graduation Preparation
Week 8 (37) (May 24-28) 24 Middle & High School Sports Day 24 LS Field Trip 25 Kindergarten Graduation/G5 Promotion 26 G8 Graduation and G12 Graduation 27 Pre-Kindergarten & G1-4, 6 & 7, 9-11 Recognition 28 Last day of School for Students 31 Last day for Teachers/Staff Meeting	Clearance and Graduation Preparation

“Kindling the Light of Faith, Hope, and Love: The Legacy of St. Dominic de Guzmán”