

MPUSD Secondary Course Syllabus for Integrated Math 3+

Name of School/Year: **2018-2019**
Name of Course: **Integrated Math 3+**
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Preparation Period/teacher availability for extra help or conferences: **by appointment after school**

Course description from District approved course outline:

This Integrated Math 3+ course involves statistical inference, probability to make decisions, interpreting functions, polynomial functions including identities to the complex numbers, Fundamental Theorem of Algebra; show that it is true for quadratic polynomials, Binomial Theorem for the expansion of $(x + y)^n$, rational expressions and its operations, rational functions, radical functions, exponential functions, logarithmic functions, trigonometric functions, similarity, right triangles, and Laws of Sines and Cosines.

Prerequisite courses/skills needed for this course: Integrated Math 1 and 2

Key essential standards/skills to be mastered in this course:

Unit 1: Statistical Inference

The Statistical Inference unit is aligned with power standards from the Statistics and Probability conceptual category:

- S.ID-4 Use the mean and standard deviation of a data set to fit it to a normal distribution and estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.
- S.IC-1 Understand statistics as a process for making inferences to be made about population parameters based on a random sample from that population.
- S.IC-3 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
- S.IC-4 Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
- S.IC-6 Evaluate reports based on data

Using Probability to Make Decisions S-MD

- S-MD - 6 (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).
- S-MD - 7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game). ↔

Unit 2: Interpreting Functions

The Interpreting Functions unit is aligned with power standards from the Algebra and Functions conceptual categories:

- A.CED-1 Create equations and inequalities in one variable including ones with absolute value and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
- A.CED-2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
- F.IF-4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximum and minimums; symmetries; end behavior; and periodicity.*
- F.IF-8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

- F.BF-3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Including recognizing even and odd functions from their graphs and algebraic expressions for them.

Unit 3: Polynomial Functions

The Polynomial Functions unit is aligned with power standards from the Algebra and Functions conceptual categories:

- A.SSE-1 Interpret expressions that represent a quantity in terms of its context.
 - A.SSE-1a Interpret parts of an expression, such as terms, factors, and coefficients.
 - A.SSE-1b Interpret complicated expressions by viewing one or more of their parts as a single entity.
- A.APR-1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
- A.APR-2 Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.
- A.APR-3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.
- F.IF-4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximum and minimums; symmetries; end behavior; and periodicity.*
- F.IF-7c Graph polynomial functions, including zeros when suitable factorizations are available, and showing end behavior.

The Complex Number System N-CN Use complex numbers in polynomial identities and equations. [Polynomials with real coefficients; apply N.CN.9 to higher degree polynomials.]

- N-CN - 8(+) Extend polynomial identities to the complex numbers.
- N-CN - 9(+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.

Unit 4: Rational Functions

The Rational Functions and Equations unit is aligned with power standards from the Algebra conceptual category:

- A.APR-6 Rewrite simple rational expressions in different forms; write where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.
- A.REI-2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
- A.REI-11 Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.
- A.CED.1 Create equations and inequalities in one variable and use them to solve problems.

Arithmetic with Polynomials and Rational Expressions A-APR 5 and 6

- A-APR-5 (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.
- A-APR -6 (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

Unit 5: Radical Functions

The Radical Functions unit is aligned with power standards from the Algebra and Functions conceptual categories:

- F.IF-5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.
- F.IF-7b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
- F.IF-9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
- F.BF-4a Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. *For example, $f(x) = (x + 1)/(x - 1)$ for $x \neq 1$.*

- A.REI-2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

Unit 6: Exponential and Logarithmic Functions

The Exponential and Logarithmic Functions unit is aligned with power standards from the Functions conceptual category:

- F.IF-7e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
- F.IF-9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
- F.LE-4 For exponential models, express as a logarithm the solution to where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.
- F.LE-4.1. Prove simple laws of logarithms.

Unit 7: Trigonometric Functions

The Trigonometric Functions and Equations unit is aligned with power standards from the Functions conceptual category:

- F.IF-7e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
- F.IF-9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
- F.TF-1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.
- F.TF-2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.
- F.TF-5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.

Similarity, Right Triangles, and Trigonometry G-SRT 9-11

Apply trigonometry to general triangles.

- G-SRT -9 (+) Derive the formula $A = 1/2 ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
- G-SRT -10 (+) Prove the Laws of Sines and Cosines and use them to solve problems.
- G-SRT -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).

Major Assignments /Examinations-schedule:

A. NWEA Map test

B. Unit Assessments, Formative Tasks, Summative Tasks, Final Examination

C. Quizzes, Departmental Pre and Post Tests

D. Quarterly Group Projects and Presentations and Individual Mini - Lesson Project

E. Pair Share and Group Tasks on assigned topics/ problems/ lessons

F. Warm-ups (computer – based , paper or pencil , white board activity, independent activity) and homework check ups

G. Substitute teacher assigned activity / worktime

Curriculum and instructional materials needed for this course:

State-adopted text: **Integrated Math 3 by Carnegie Learning**

Supplementary materials: **District Math Unit of Study**

District Grading Policy: (BP/AR #5121)

Grades serve a valuable instructional purpose by helping students and parents/guardians identify the student's areas of strength and those areas needing improvement. Parents/guardians and students have the right to receive course grades that represent an accurate evaluation of the student's achievement. Teachers shall evaluate a student's work in relation to standards, which apply to all students at his/her grade level and provide appropriate accommodations and modifications to insure students have access to the course content and standards in which the grade is based upon. Teachers shall inform students and parents/guardians how student achievement will be evaluated in the classroom. Grades should be based on impartial, consistent observation of the quality of the student's work and his/her mastery of course content and objectives.

Students shall have the opportunity to demonstrate this mastery through a variety of methods such as classroom participation, homework, tests, and portfolios.

Classroom Grading Policy

Letter Grade Equivalent

Classwork/Homework	10%	A = Advanced, more complex
Collaborative Presentation	15%	learning goal (90-100%), 4.0 grade point
Notebook/Portfolio.....	10%	B = Proficient, target learning
Quizzes/Formative Task.....	15%	learning goal (80-89%), 3.0 grade point
Mini Lesson Project.....	15%	C = Basic, Partial success (70-79%) , 2.0 grade point
Unit Test/ Summative Task.....	10%	D = Below Basic, With help partial success (60-69%), 1.0
Final Test.....	10%	grade point.
Pair/Group Task/Reflections.....	15%	F = Far below Basic (0-59%), 0 grade point
Total.....	100%	

District Homework Policy:

Homework reinforces classroom learning and expands upon the classroom experiences and for grading purposes is supplemental in terms of evaluating students' mastery of course content standards.

Classroom Homework Policy:

Homework will be recorded by the teacher daily on her homework chart. So if you are absent and you come the following day, make sure you go to the "Missing Homework" corner to write down the homework you missed, or have your parents request any missing assignments by calling the office. Show your work in all of the given questions. Homework is given daily, during the weekends and holidays between 6-36 items a day. In order that you will not be overwhelmed on doing it, you can begin working on it during my transition time which is after you finished the warm-up or word bank etc. and while the teacher is still checking the previous homework. Every item in your homework will be checked and it will be recorded in my grade book. "NO WORK, NO GAIN."

Transition Activity Policy when you already finished one activity:

1. Pass your homework.
2. Copy the date, lesson, and homework in your notebook.
3. Answer the warm-up.
4. Copy the new vocabulary in your notebook that can be found in your packet. Look at the definition in your packet to know the meaning of the new words.
5. Review the previous lessons and preview the new lessons to be ready in class.
6. Start working in your homework or any assigned tasks.
7. Update your participation points, chapter test scores, quizzes and homework in your notebook
8. Complete your reflection about the finished lesson.
9. Fix your portfolios in order (sequence: homework, mini quiz, chapter test, and other handouts)
10. You can only do extra credit activity when you finished all the 9 transition activities as mentioned above.

Be quiet when you are doing your transition activity. Give others the opportunity to finish their warm-up, test or quiz, or group tasks.

District Attendance/Make-Up work Policy:

State Law requires all students to attend school daily: (EC Code 48205, BP #5113/AR# 5113). Excused absences include: illness or medical appointment. Students with excused or unexcused absences can make up work missed; the amount of time given will be equivalent to the number of days missed. Parents may request to pick up work missed if a student has been absent for at least two (2) days. Work will be available after 2:00 pm on the day following the request. Students who cut class do not have to be given the opportunity to make up work missed during the class period they missed.

Classroom Attendance/ Make –Up work Policy:

▲ **Attendance** – is important since most of your learning will take place in the classroom setting. If you are absent, it is your **RESPONSIBILITY** to obtain any missing notes, handouts, and homework or class work. The teacher is ready to help you at all times but you have to be accountable in monitoring your progress in class. So take the initiative to ask the teacher for any missing work that you need to complete and avoid blaming your failure to other individuals.

So if you are absent in class from the previous day and you come to class the following day, raise your hand and ask the teacher for make-up work. Deadline for the completed work will be on the following day since the time you are present in class.

▲ **Unexcused Tardy** - It is considered LATE if there are “No slip passes” from the office or from any teacher who hold you during my class period.

▲ **Not sitting on assigned seats when the second bell rings** is considered late even though you are already inside the classroom. No one should be seen in the backpack area when the second bell rings. Everybody is expected to be in their own seats copying the date, lesson, and homework and answer the warm-up.

District/School Discipline Policy:

While on campus, students will follow all school rules, show respect for all adults, fellow students, and both personal and school property. In addition, students will comply with the established guidelines of the Monterey Peninsula Unified School District student dress code. A progressive discipline process is followed. As students continue violating school rules, consequences for student actions become more severe. Classroom suspension and possible removal from school will result when students engage in infractions that are outlined in Education Code related to Progressive Discipline Grounds For Suspension or Expulsion According to Education Code 48900, (BP# 5144).

Classroom Rules/Expectations and Consequences:

Classroom rules/expectations and consequences are established to guide you in your learning. Procedures and other classroom rituals are outlined for entering and leaving the classroom as well as for ALL activities that will take place in the classroom.

Rules:

- ▲ Be respectful, kind, and courteous to your teacher and each other. Always greet other teachers or visitors “good morning” or good afternoon” at all times whenever they come to our classroom.
- ▲ Be in your seat when the second bell rings, ready to work. Stay focused on tasks at hand.
- ▲ Have class materials organized and ready.
- ▲ Food, gum, any drinks, hats, hoods, and any electronics in class or any gadgets are not allowed in class.
- ▲ One person speaks at a time.
- ▲ Raise your hand when you have a question, and wait to be called on.
- ▲ Use appropriate language in class.
- ▲ Take care of bathroom breaks before class starts, not during class.
- ▲ Avoid distracting behaviors.
- ▲ Obey all school rules

You will be expected to develop and use problems-solving strategies, conduct mathematical investigations and apply writing skills in mathematics.

Being a successful learner you will take **RESPONSIBILITY**. I am here to help you to become organize in your mathematical thinking. It is important that you are prepared for class every day. Here are the following requirements you need throughout the course as we work on various math concepts:

EXPECTATIONS: Come to class prepared with these materials.

● Notebook - has two components, **Part 1** includes date, lesson, lecture notes, group work activities, exercises/extra examples, and reflection and these should all be written at the beginning pages and **Part 2** is for your participation points, chapter tests, mini quizzes scores, lists of daily homework and word bank should be written in the last pages of your notebook to the middle part of your notebook. Every time you finish a lesson, you are expected to write your reflection about the lesson that we just finished. Look at the calendar on the board when the notebook needs to be turned in.

- Sharpened Pencils with eraser (at least 3) or an ink pen blue or black
- Red correcting pen
- Dry erase marker (any color) with erasers
- Highlighters/ colored pencils
- Stapler and staple wires (small ones)
- Textbook/Packets
- Binder paper

You must have your own materials. Borrowing from classmates or the teacher is unacceptable. **BE PREPARED** and **BE ACCOUNTABLE** of your belongings. Avoid accusing others about the lost of any of your materials. So keep your eyes on your materials.

► **MONTHLY MONITORS** – are assigned to you to maximize participation in class. You have to help keep our classroom more orderly and productive. Respect, courtesy, obedience and good leadership are necessary to make the monitor system work and to prepare you for your adult life.

► **CLASS PAPERS FOR SUBMISSION:**

- Papers must be done neatly in legible handwriting.
- All papers must have proper headings (full name, subject-period, full date, assignment).
- Homework assignments are due at the very beginning of the class period.
- Papers turned in at the end of the period or the next day is considered late.
- Late work will only be accepted for excused absences.

► **RETAKE TEST:** Anyone is invited to come to a scheduled retake test for any lesson you want to improve. So it is your **RESPONSIBILITY** to come during retakes and to write down the schedules in your notebook when to retake it. The highest scores will be recorded in exchange of your lower scores. Look at your calendar on the board so you know when will be the retake test.

► **TUTORIAL:** This is a student support to help you fully understand the mathematical concepts or standards that you do not understand. Any student who is recommended by the teacher, counselor or administrators to attend this program should attend the class after school. The basis of attending are as follows: those who do not meet any progress in class with a grade of D or below ; or your performance level is going down from A to a D or below or you really don't get the lesson; or your parent recommended you to be in this program. You will receive a tutorial invitation letter to inform you and your parents. The schedule for tutorial will be announced to you later. On the other hand, if after my class hours and you did not get the lesson, you will be coming to a break or lunch tutorials to make sure you understand the lesson before you go home.

► **PORTFOLIO:** Every student in this course should have a portfolio. The teacher will be the one to provide you the folder every semester You are expected to put all your homework, mini quizzes, chapter tests, class work packets, course syllabus, small projects, participation points, or any miscellaneous work in the portfolio. Like the notebook , this is 10% of your overall grade, so you should learn how to organize all the things we do in class. The order of the work are as follows: homework, quizzes/formative task, unit test/summative task, group task, syllabus, and other handouts.

► **PARTICIPATION POINTS:** is your extra credit point that will be merged to any category of your grades at the end of the quarter. You must be responsible in tallying all your points that you are getting from the warm-up, oral recitations, substitute work time or class work, and any other points that the teacher gives you. Be honest and responsible in putting your points. The teacher knows what you are doing so you better be truthful in dealing with your own transactions.

BUILD YOUR TRUST to your teacher and to everybody around you. Participation points will be turned in every quarter. The date of submission is the same day as you turn in your portfolio.

► **MAJOR PROJECT /PRESENTATION:** is a quarterly group activity. The teacher will be the one to assign your groups. The topics will be draw lots. Once you know the topic you have to make a poster with a format (Lesson number and title of the lesson, goal, word bank, examples, summary and conclusion). Each group member should provide the materials. You are not suppose to ask the teacher for any material you need. You are **RESPONSIBLE** to take the project seriously. Posters should be done in one period. You will all do the work in class. After making the poster, you will explain your work in front of the class. After which, the teacher will ask each group member a question to be answered. Your grade will be based on the following criteria: content (25%), teamwork (25%), presentation (25%) , and poster (25%). The group secretary should write down what each member of her/his group brings, what example they do, what else they do to complete the poster. This is 15% of your overall grade.

The other project is a three -day mini lesson booklet. This is an individual project and the unit that you will do is by draw lots also. You are responsible to bring your own paper, markers to write down your lessons, and a transparent folder to see your front cover with the title. Each topic in the chapter should have at least three to five sentences introduction. Example should have a minimum of 3 to a maximum of five examples with at least one word problem for each lesson. At the end of the unit, you have to make your own unit test with answers on the next page of your Unit test.

► **PAIR/GROUP TASKS/ REFLECTION:** will be assigned by the teacher on a daily, twice a week, or on a weekly basis. This is part of your classroom routine that all students should participate. **NO ONE IS EXCUSED** to work with partners or small group. Expect that your seating arrangement will be changed anytime to avoid familiarization among the group members that may cause you to be ineffective and unproductive during the group discussions. The teacher will give you the problems to work on and discuss among your selves. During this tasks you can only ask some clarification from the teacher but she will only guide you to elaborate your discussions and think critically on the problems you are working on. You will be assigned between two to four people in a group. Each group member has a role to do such as: (1) facilitator; (2) recorder/secretary; (3) reporter; (4) timer or any combinations of these roles. In the end of the discussion you will present your work to the class and have the class to constructively criticize your work. Use sentence frames in your summary and use effective and academic language during discussions. Avoid teasing or bullying and using inappropriate language. The group tasks is graded based on your teamwork, using academic language, sharing and thinking independently, presentations, and writing a summary. First you will be given the time to read the problem your self; then you will have an independent thinking time; and finally the teacher will put you into groups for discussion, presentation and reflection.

► **ENTRY/ FORMATIVE TASK** is any learning activity or assessment that **YOU** need do to demonstrate **YOUR** knowledge, understanding and proficiency. It yields a tangible product that serve as evidence of learning.

► **SUMMATIVE TASK:** is to evaluate **YOU** at the end of the unit. This is 10% of your overall grade

► **POSITIVE REWARDS:** Praise and appropriate special privileges.

CONSEQUENCES: Discipline consequences may occur anytime in one period and they are the following:

● **Warning is only given once** and this is automatically a classroom detention for 10 minutes during morning break, lunch break, or after school. While in detention you are expected to write your apology letter about what you did in class. Then you will give the apology letter to the teacher for signature. Return the apology letter the following day together with your homework. On the other hand, if the teacher tells you to stay for detention and you missed it or intentionally missed it, your name will appear in the lunch detention lists according to the number of times you refused or missed your classroom detention. Your parents will be called on and a possible request for a parent conference.

Now if you are using the instructional time ineffectively and you ignored the warning then the teacher will send you to the office immediately to let the other students continue their learning.

● **A student can have a classroom detention on the following grounds:** any class disruption that hinders any individual students to learn or for the teacher to teach, no homework, did not do or finish the work time, project, not copying the important key points in the lesson as instructed, no classroom materials, or did not get the lesson (teacher will tutor him/her during break time). Thus, a **NO BREAK TIME POLICY** will be implemented for any classroom activity you fail to accomplish during the class period including inappropriate behavior.

● **For severe or repeated misbehavior** = Immediate referral to the office

= Referral followed by Class suspension (maximum of 2 days)

= SST/Parent-teacher-student Conference

= Community Service

= Suspended from school

= transfer to a Community Day School

Academic Honesty:

Students need to prove to themselves that they can do successful work as a result of their own efforts. Cheating, lying, and/or plagiarizing could result in disciplinary actions and/or implications that may impact the grade for the course.

Causes for academic dishonesty are complex and is best addressed by counseling and parental involvement. Teachers will establish a classroom policy consistent with research-based best practices.

Classroom Policy:

Any effort of dishonesty (for both students) will result to a “NO CREDIT POINT” to any work you have turned in. In addition this is automatically be a REFERRAL and it will go to your permanent record. The teacher will address this infraction to your parents by calling them.

Return this portion to your classroom teacher.

Please provide some information about your learning needs so I can be sure to support you in having a successful school year in my class.

1. What way to you prefer to learn new information? **Circle all that apply:** Read it, write it down, listen to it, watch a demonstration or see a picture, or act it out.
2. If you need extra help with classroom or homework, what works best for you?
3. Do you have a computer or access to a computer to do work?
4. Do you have access to the internet to look up website resources?
5. Do you have a quiet place to do your homework or study each afternoon or evening?

Other information about you that might help me to support you in my class:

I have received a copy of the course syllabus for **Algebra 2** course that includes the standards/skills to be mastered, the method of assessment and evaluation along with the classroom grading policy. In addition, I understand the rules/expectations and consequences for the class.

Student Name: _____ Class Period: _____
Student Signature: _____ Date: _____

Parents/Guardians,

How do you prefer to be contacted?

Please rank order preferences on the left and fill in contact information on the right:

____ Cell Phone (____) _____
____ E-mail _____ @ _____
____ Home Phone (____) _____
____ Other (please indicate) _____

Do you prefer correspondence in English or Spanish? Check one. _____ English _____ Spanish

Parent/Guardian Name: _____
Parent/Guardian Signature: _____ Date: _____