SYLLABUSSpring 2018

 Welcome to Intermediate Algebra



Math is a way of viewing the world. To me, it is an incredibly creative activity that involves asking meaningful questions and then pursuing the answers to those questions without knowing exactly where it might take you. In this class we will be exploring the world of patterns, called Algebra. The patterns inherent in beadwork, canoes, and basket weaving show the important role algebraic thinking has always played in Native communities.

My Values and Beliefs (as a teacher and a human being)

* Every person brings something unique from their own history to the classroom that we can all learn from.
* We are stronger together and we all benefit from supporting each other’s growth.
* Math is universal and something every person has inside of them already.
* My role as a teacher is to draw out the math skills you already have; to help you expand and deepen the way you see, not to talk *at you* about what I see.
* During class we can practice the skills that help us build a stronger society, like creating learning environments that truly respects individual thought and working together on complicated problems.
* Learning math not only takes time, it requires a safe space in which you can make mistakes and be creative.

**Course:** Math 99 A (5 credits)

**Instructor:** Cassandra Cook (ccook1@nwic.edu)

**Class Time:** Monday/Wednesday/Friday 10:30–12:20 and Tuesday/Thursday 10:30 –11:20

**Room:** LS-115 (the old Lummi Day School)

**Phone:** (360) 392 – 4235

**Office Hours**

This is approximately what my week looks like (minus unforeseen meetings).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | M | T | W | R | F |
| 9 - 10:30 | Tutoring Center | Tutoring Center | Tutoring Center | Tutoring Center | Tutoring Center |
| 10:30 - 11:30 | Math99 | Math99 | Math99 | Math99 | Math99 |
| 11:30 - 12:30 | Math99  | Tutoring Center | Math99  | Tutoring Center | Math99  |
| 12:30 - 1:30 | Tutoring Center | FYE Meeting (12-1) | Stone Soup | In-service Meeting | Tutoring Center |
| 1:30 - 2:30 | Math91 | Math FIG | Math91 | In-serviceMeeting | Math91 |
| 2:30 - 3:30 | Tutoring Center | Math91 | Tutoring Center | Math91 | Tutoring Center |
| 3:30 - 5:00 | Grading/Prep | Grading/Prep | Grading/Prep | Grading/Prep | Grading/Prep |

Note there will be one more meeting between me and the tutors that is not yet on this schedule.

**Course Description:** Extends the fundamentals of algebra, including pattern recognition and generalization, connecting the symbolism of algebra to geometry, solving linear equations and inequalities, and representing algebraic objects in multiple ways (symbolic, graphic, geometric, contextual, verbal). Emphasis is on multiple representations of quadratic objects, including factoring and the square root relationship.

**College Outcomes:**

Students will be able to…

* effectively communicate in diverse situations, from receiving to expressing information, both verbally and non-verbally,

**Prerequisite:** MATH 98 or Placement test.

**Textbook:** No required text (get a TI-83 calculator instead)

##### **Student Email:** All students receive an <@stu.nwic.edu> email account upon enrollment. All official notifications about your bookstore voucher code, Moodle, financial aid, scholarship and internship opportunities, and student evaluations are done through your <@stu.nwic.edu> email account.

##### Your email address is your first initial and last name@stu.nwic.edu For example, Joe Student would be <jstudent@stu.nwic.edu>. If there is more than one “jstudent,” Joe might be jstudent1@stu.nwic.edu.

##### You can access your nwic.edu email account from any browser by going to the [www.nwic.edu](http://www.nwic.edu) website and clicking “email login.”

**Technology Policies:** This class depends a lot on you and your contribution. Try to avoid unnecessary phone use that might distract you or others. Phone calculators can be a useful resource, but during quizzes/tests you will be using a TI-83 calculator. I highly recommend you get a TI-83 graphing calculator to bring to class and to use on tests/quizzes.

There are TI-83 calculators in the bookstore which cost the same as a typical textbook. You can purchase the calculator with your book voucher. You can look around for a cheaper one online. There is also a TI-83 calculator app that some phones can download.

**Attendance:** Attendance is crucial to your success in this class. Most of class time is spent on you actively doing math. To successfully learn all the material in the brief time we have together it is important you are present and participate in class. If you are going to miss class, contact me as soon as possible (preferably ahead of time). We can work out a plan for you to stay up on the work.

**Class policies:** Though I do not collect homework after the due date, you will have multiple opportunities to both learn and to show me what you have learned. As long as you are turning in homework on a regular basis your grade will not be negatively affected from not being able to turn in a few late assignments. My goal is for homework to be fun and useful to your learning. If you have been turning in homework on most days and you need to miss class, don’t worry about trying to complete and turn in the homework for the day you missed. Missing a few homework assignments has no negative affect on your grade.

**Class components:**

* You will build a portfolio of your work throughout the quarter
* There will be homework daily which will serve as many opportunities to practice and deepen your understanding of the material
* There will be 4 quizzes, a practice final and a final
* You may give a presentation in the final week of the quarter as part of the B and A grades

The Math and Writing Center

## Studying math?

## Looking for a place to study with classmates?

## Writing a paper?

**Come visit the study center. We have calculators, computers, and on-hand student mentors. Come make this space your own!**

**We are located in building 3.**

Hours

Monday 9 am – 6 pm Thursday 9 am – 6 pm

Tuesday 9 am – 6 pm Friday 9 am – 5 pm

Wednesday 9 am – 6 pm

**Grading:**

All college courses have learning goals called course outcomes. The course outcomes are what you will be able to do by the time you finish the course. The list of outcomes for this class is written below.

**Course Outcomes:**

* Generalize and describe symbolically the relationship between two quantities in an algebraic pattern.
* Convert between multiple representations (graphical, geometric, algebraic, contextual, verbal) of linear equations and inequalities, and of linear and quadratic expressions.
* Relate various geometric concepts, such as length, area, and volume, through natural language descriptions and symbolic formulas, including the square root relationship.
* Solve linear equations and inequalities through numerical investigation, graphically and symbolically.
* Demonstrate proportional reasoning.
* Describe symbolically equivalent linear and quadratic expressions.
* Multiply polynomials and factor trinomials, relating these concepts to the geometry of rectangles.
* Solve quadratic equations graphically.

At the end of the quarter your final grade will be assigned based on the criteria shown below.

For a C grade you will

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| --- |
| * Attend class at least 70% of the time
* Demonstrate a proficient understanding of all of the learning outcomes
* Consistently spend time outside of class building understanding of the material. For example, you could practice the ideas by working on the homework or the patterns that we will use in class, or going further with the notes you took in class.
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For a B grade you will fulfil the requirements for a C grade and

|  |  |  |
| --- | --- | --- |
| * Demonstrate a fluent understanding of at least two of the learning outcomes
 |  OR | * Present on a pattern that you develop
 |

* Turn in at least half of the homework assignments on time

For an A grade you will have fulfilled the requirements for a C grade and

* Demonstrate a fluent understanding of at least three of the learning outcomes
* Complete most of the homework, quizzes, and menu work on time

(I’ll be looking at your overall effort to turn things in on time. If you miss one quiz and a few menu patterns and a handful of homework assignments you are still eligible for the A grade)

* Present on a task that you develop

An example of a “menu rubric” is attached at the end of the syllabus. This is a tool for how I will grade some of your work. It is attached to the end of the syllabus.

**This calendar is a tentative schedule. Check your e-mail to stay up-to-date on any changes (especially if it snows)!**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Monday | Tuesday | Wednesday | Thursday | Friday |
| April | 2IntroductionsRoom MapsIntroduction to “Menu” | 3*How do you see?* exercise with one of the growing dots/Menu time  | 4Balance beam warm-up/Menu time | 5Balance beam warm-up/Menu time  | 6Balance beam warm-up/Menu time |
| April | 9Balance beam warm-up/Menu time  | 10Balance beam warm-up/Menu time | 11Growing Dots group activity | 12Reading and discussion/Menu rubric Group Activity | 13Balance beam warm-up/Menu time  |
| April | 16Balance beam warm-up/Menu time | 17Solving equations rubric group activityClass observation | 18One-on-one check-ins | 19Menu time Last Day to withdraw with a 100% refund | 20**Menu 1 Due** |
| April | 23**Begin number talks** The Pool Problem Group Activity | 24**Begin Menu 2** | 25Number talk/Menu time | 26Menu time | 27Menu time |
| April/May | 30Number talk/Menu time  | 1Class observationNumber talk/Menu time  | 2Number talk/Menu time | 3Menu time | 4Menu time |
| May | 7Number talk/Solving equations (writing a page of notes for the quiz) | 8Number talk/In-class Quiz  | 9Number talk/Menu time/One-on-one check-ins | 10Stretched rectangles group activity | 11Menu time |
| May | 14Menu time | 15**Menu 2 Due** | 16 **Begin Menu 3** Menu time | 17Menu time | 18Menu time |
| May | 21Number talk/Menu time  | 22Number talk/Menu time  | 23Number talk/Algebra Tiles Group Activity | 24Menu time | 25Algebra Tiles Group ActivityLast day to Withdraw |
| May/June | 28Memorial Day: School Closed | 29Number talk/Menu time  | 301st hour: Menu time2nd hour: Multiplying and Factoring in-class assessment | 31Menu time  | 11st hour: Menu time2nd hour: Multiplying and Factoring in-class assessment |
| June | 4Number talk/Menu time  | 5Number talk/ **Menu 3 Due** | 6Work on final menu portfolio  | 7Work on final menu portfolio (due by the end of the day)/Work on presentation if you’re doing oneone-on-one check-in during class | 8Final Assessment (part 1) |
| June | 11Feedback on Final Assessment (part 1)/Study Groups | 12Final Assessment (part 2) | 13Presentations | 14Last Day of Class/Celebration Meal and Class Evaluations | 15 |

**It is important for you to know about these two policies of Northwest Indian College:**

*Grade Change:*

*Grade and designation of Incomplete recorded by the registrar at the end of a quarter will be considered final and not be changed except in the following cases:*

* *When a letter grade is submitted to replace the incomplete, by the instructor of record or, if the instructor of record is no longer employed by NWIC, by the Dean of Academics.*
* *When a grade resulting from an error, such as a computation error, is corrected by the instructor of record; the request for change to correct these errors may only be made by the instructor of record, before the beginning of blue-slip week (second week of the quarter) of the following quarter.*
* *When an error committed in the administrative recording process is corrected by the registrar’s office.*
* *When a student’s grade appeal has been adjudicated, as outlined in the grievance procedure in the Student Handbook.*

This basically means that, unless there is a mistake made, the grade you receive at the end of the quarter is your grade. It can’t be changed after the fact, which is why it’s important that you also read and understand the part below:

*If a student* ***has been making consistent progress and has regular attendance****, but some essential requirement of the course has not been completed because of unforeseen circumstances the student has the option to request to enter into an incomplete agreement. The deadline to request an incomplete agreement is the last day of the quarter.*

*It is the Instructor’s discretion whether to accept the student’s request.*

*When the instructor submits an incomplete agreement for a student, included should be:*

* *the grade earned by the student on the date that the incomplete agreement is submitted,*
* *a detailed list of remaining work to be completed, and*
* *a deadline for the completion of that work. (The deadline is not to extend longer than two consecutive quarters).*

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| --- | --- | --- | --- |
| Math 99 | **Conceptual Understanding** | **Communication** | **Accuracy**(checking and defending) |
| Above and beyond. Whoa!  | The translation of the task into mathematical concepts is thorough and connects or extends to other problems/ideas. | Pictures, models, symbolic formulas, graphs, and words are clearly connected through the use of color, labeling, an appropriate layout… | Includes additional “sense making” (such as asking: Are my conclusions reasonable? How can I check?) |
| Fluent | The translation of the task into mathematical concepts is thorough (clearly describes the pattern geometrically and in words in TWO different ways; includes two formulas, which are then simplified. Includes a graph that extends into negative x-values.) | Pictures, models, symbolic formulas, graphs, and words are used in harmony and presented in a logical way. Includes accurate labels of variables and axes. Clearly identified the mathematical relationship you explored in this task. | All conclusions made are supported by the work shown using more than one argument to justify each conclusion; there are at least two different ways-of-seeing. |
| Proficient | The translation of the task into mathematical concepts is completed (describes the pattern geometrically and in words. Includes a formula and a graph that extends into negative x-values. Describe in complete sentences the growth rate in the picture, in the formula, and in the graph). | Pictures, models, symbolic formulas, graphs, and words are used appropriately.  | All conclusions made are supported by the work shown. |
| Emerging | The translation of the major concepts of the task is partially completed (describes the pattern in words, pictures or symbols, but not necessarily all three). | Pictures, models, symbolic formulas, graphs, and words are inconsistent with each other, unclear, or partially missing. | The work shown does not entirely support all conclusions made or is missing. |
| Incomplete | The translation of the task is incorrect or only just begun. | Pictures, models, symbolic formulas, graphs, and words are mostly missing or incomplete. | There are few or no conclusions made. |
| COMMENTS |  |

# Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Homework due 4/3/18

One Point of View: Student’s Right to Be Wrong by Ed Labinowicz

As teachers, our view of learning is reflected directly in how we respond to student’s errors. A popular and long-standing belief among the majority of teachers is that errors and confusion have no educational value and, therefore, must be eliminated from the classroom. Hence, the teacher’s role is interpreted as one that involves breaking learning down into such small steps that errors are not experienced. This role also includes modeling procedures explicitly and rescuing a student from periods of confusion by quickly intervening with the correct answer or procedure.

By contrast, in recent years growing numbers of researchers have explored student’s mathematical ideas apart from their “correctness.” Results of these interview studies consistently report provocative findings and confirm the position on the important role of errors in the gradual development of student’s thinking.

Student’s errors are necessary steps toward eventual reconstruction of ideas at a higher level of understanding. Rather than being random or mindless, errors are often systematic, may endure for long periods, and reveal some underlying logic.

The interview research has accumulated considerable evidence on student’s invention of useful strategies that were constructed in place of “what they should have learned” from our teaching. Wrong answers also can be considered as the result of personal procedures invented by students in an attempt to cope with a situation. Sometimes the resulting procedures are more complex that the correct ones.

Without some confusion, students would lack both the curiosity to notice a problem and the motivation to stick with it until conflicting ideas became resolved. In constructing their own thinking, students showing the most confusion often show the greatest progress toward a mature level of understanding. Since learning math involves the construction of abstract ideas and complex relations, some errors and confusion are unavoidable in the process.

By applying the more popular notion of teaching and learning, that is, breaking learning down into small steps, we are denying students the right to be wrong or to be confused. In doing so, we are rejecting their ability to construct their own understanding in their own time. This denial starts a destructive cycle in which students learn to mistrust their own thinking. This approach also denies the complexity and interrelatedness of mathematical ideas and results in making learning math meaningless.

Errors can be instructive for teachers – revealing the ideas a student brings to a task. In responding to our question, a student’s error is often a correct answer to a different question. This reveals the way the student interpreted the problem. Unless we as teachers learn to understand what a student is thinking and resist our urge to rescue them in times of confusion, our role becomes restricted to telling rather than teaching. Whereas errors can be a valuable teaching resource, the denial to student’s right to be wrong represents a missed opportunity-both for learning from our students and for improving our teaching.

For problem solving to thrive in the classroom, the prevailing atmosphere must be one in which students are willing to risk showing confusion and being wrong; also, one in which they are encouraged to analyze their own errors, as well as those of other students, in order to appreciate them as data from which to learn.

Reflect back on the reading.

1) Is the author saying that making mistakes is a good thing?

2) What do you need to do in order to learn from your errors?

3) Look back at the line underlined in purple. What do you think the author means?

4) Look back at the line underlined in blue. What do you think the author means?

5) One of your classmates makes a “mistake”. Show that you understood the reading by describing how you could support your classmate.

6) What do you find is valuable about learning math?