MAT 122: Intermediate Algebra

Class Days/Times/Room: Monday, Tuesday, and Wednesday (*lu:nas c maltis c miaklos*) 9:00 to 9:50 room 303, Central / Sells *Komced E-wa:ositk* Campus The dual enrollment section / MAT 122 3	Autumn (*wi'ihanig*) 2017

Instructor: Richard LEE	Regular Phone: 520 383 0062 Text / Cell be professional: 520 205 2123 Please contact BHS front office for emergencies E-mail: rlee@tocc.edu

Course Description:

Basic algebraic functions, including the language of sets, lines in the plane, systems of linear equations, rational expressions and equations, radical expressions and equations, quadratics, exponents and logarithms.

Course Objectives:

During this course students will

1. Add, subtract, multiply and divide numbers in the real number system.
2. **Solve** (linear, rational, radical, quadratic, exponential and logarithmic) equations and inequalities, both in isolation and in the context of story problems and real-life applications. Realize that some equations and inequalities may have no solution – or infinitely many of them.
3. Visualize equations by graphing.
4. Add, subtract, multiply and divide expressions.

Student Learning Outcomes (SLOs) :

After completion of the course students will be able to

- Use the skills of arithmetic and algebra, in isolation and in application, with and
  without technologies (including but not restricted to calculators and computer programs).
- Express themselves visually (in graphing functions and) in presenting their answers
  to real-life problems.

Course Structure:

This course will be operating on a combination of traditional lecture, group activity, and discussions that will enhance the student's knowledge of mathematical concepts. **Much** of this work will need to be done outside of class.

Texts and Materials:
We will be using handouts ultimately based on the free *College Algebra* text by Abramson and sponsored by OpenStax College in cooperation with the Bill and Melinda Gates Foundation and Rice University - http://cnx.org/content/col11759/latest. A non-graphing calculator that is NOT on a cell phone is preferred; however, you will find that I will have you on the honor system.

Evaluation and Grading & Assignments:
Two tests at 100 points = 200
One comprehensive final exam = 100
Homework / quizzes in its totality = 200
Attendance while required **will not be graded**.
Total possible points = 500

An A requires 500 x .9 = 450 points. A B will require 500 x .8 = 400 points.

Himdag **Cultural Component:**
My interpretation of what Nahban said in *the Desert Smells Like Rain* is this: while the *himdag* discourages direct, exact answers, in the mathematical world, one is expected to be able to come up with a precise answer for the situation. That being said, there are a few common issues shared:
- *Baban* (coyotes) are not going to affect your homework or my tests – they didn't write either. (Certainly beats the classic "My dog ate my homework!")
- While one must go through a maze to see *i'itoi*, there was no mention as to how many mazes there were to get to him. Likewise, you will discover that there are many different ways to perform the math necessary to see the final answer.
- *I-we:tma*: for your success, the college's and the community's, DO NOT work alone – it is a group activity (except on the tests, of course).
- *T-Wohocudadag c t-apedag c t-pik elida*: We learn for our well-being. We respect each other, ourselves and our community. We respect and take pride in our own work. We respect each other's abilities, quirks and privacy. We believe in ourselves and others.

Prerequisites and destinations:
To be in this class, you must have
- passed math 092 here with a C or better, or
- tested into this class with a suitable Accuplacer ® score (104-120 in Elementary Algebra Exam, 54-69 in College Algebra Exam), or
- (**most of you**) obtained permission of the instructor, usually after review of previous coursework

Upon successful completion of this course, you will be taking either math 142: Topics in College Mathematics, or math 151: College Algebra

Policies and expectations-
- **Attendance will be enforced per Baboquivari HS rules**. You are responsible for any material covered in class. In addition to normal BHS procedures, e-mail me at **rlee@tocc.edu** if you miss class. **We reserve the right to drop you from both the course and the dual enrollment program for excessive absences in all the dual enrollment courses.**
- **Integrity and Honor**: I don't mind if you work on the homework in groups. In fact, I expect it. (See *i-we:tma* on previous page.) I will mind for tests and the final exam. Everything else about this topic is available in both *the TOCC Student Handbook as well as the BHS Student Handbook*.
- **Homework and Feedback**: Homework may be late - don't make it habit. (We go fast enough that it's not necessary for me to discipline you on it.) I will try to return homework within one class – not every question will be checked, but I will be using what you have done wrong as a springboard for class. (If you're wondering how I can get away with accepting late homework, we have quizzes almost every week, two tests and a final. ☺) For this semester, you should spend 3 credit hrs x 3 hrs a week per credit hr = **9** hours a week on this course.
- **Withdrawal** from this course will be handled under BHS guidelines. At TOCC, our final withdrawal date is **October 26th 2017**. By that date, you will have had at least one test. *All institutions of higher education strongly encourage instructors NEVER to ask students to withdraw from a course for both financial aid purposes and respect for the student*. (See *t-pik elida* on previous page.) Again, we will have quizzes almost every week, two tests and a final.
- Incompletes (I) will be handled under BHS guidelines.
- Makeups: My homework policy has been mentioned beforehand. As for exams, I allow a *reasonable* amount of time – not more than two weeks.
- Extra credit: None available.
- Final grades: They will be sent to the address on record twice, from both TOCC and BHS. Per FERPA and the *Himdag*, I will not give grades over the phone and am strongly discouraged from e-mailing same. (Again, see *t-pik elida* above.)
- Struggling? Tutoring is available - also, please practice *i-we:mta* and work off of each other.
- In accordance with *t-pik elida* and the Americans with Disability Act 1990 (ADA) and Section 504 of the Rehabilitation Act, if you have a learning problem, physical disability, or medical illness that requires you to have any special arrangements, please inform your instructor at the beginning of the semester so your academic performance will not suffer because of the disability or handicap.

Consolidated Course Outline and Homework Assignments.
To be determined - this is a tentative outline and quite subject to change.

Date	Topic	Done?
8/21/2017	Introductions	
8/22/2017	1.1 Algebra essentials - a good strong review Supplement #2 More on solving equations for a single variable Discuss 1.1 questions 1 to 3 and others, Supplement # 2 questions 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, **41, 45, 49** and others HW #1: 1.1 questions 29, **33**, 37, 41, 45, 49, and 53 to 59 HW #2: Supplement # 2 questions 3, 7, 11, 15, 19, 23, 27, 31, 35, 39, **43, 47** (bold can be done if you've covered polynomial operations)	
8/23/2017	Supplement #1 Story Problems / Applications Discuss Supplement #1 questions 1, 5, 9, 13, 17, 21, 25, 29, 33, 37 and others HW #3: 1st supplement questions 3, 7, 11, 15, 19, 23, 27, 31, 35	
8/28/2017	1.2 Exponents and Scientific Notation Discuss 1.2 questions 1 to 4 and 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49 and others HW #4: 1.2 questions 7, 11, 15, 19, 23, 27, 31, 35, 39, 43, 47	
8/29/2017	1.3 Radicals and Rational Expressions (not equations) Supplement #3 Multiplying and Dividing Radicals Discuss 1.3 questions 1 to 4 and 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49, 53, 57, 61 and 66 and others HW #5: 1.3 questions 7, 11, 15, 19, 23, 27, 31, 31, 35, 39, 43, 47, 51, 55, 59, 63 and 65	
8/30/2017	More on 1.3 HW #6: Supplement #3 multiples of four **Quiz 1** on questions similar to sections 1.1 and the first two supplements Collecting **HW #1 and HW #2** No school 9/4/2017 Labor Day	
9/5/2017	Still more on 1.3 (yes, there's lots of things you can do with radicals) Review both 1.3 and Supplement #3	
9/6/2017	1.4 Polynomials (operations of, not factoring) Discuss 1.4 questions 1 to 4 and 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49, 53 among others HW #7: 1.4 questions 7, 11, 15, 19, 23, 27, 31, 31, 35, 39, 43, 47, 51 **Quiz 2** on section 1.2 and 1.3 Collecting **HW #3 and HW #4**	
9/11/2017	More on 1.4	
9/12/2017	1.5 Factoring Polynomials Discuss 1.5 questions 1 to 3 and 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49 among others HW #8: 1.5 questions 7, 11, 15, 19, 23, 27, 31, 31, 35, 39, 43, 47	
9/13/2017	Review 1.1 to 1.4 and Supplements 1 to 3 for...	

(August 22nd ṣopol 'eṣabig maṣad gokko-go:k taṣ 2017 edition)

9/18/2017	**TEST 1** Collecting **HW #5 and HW #6**	
9/19/2017	More on 1.5	
9/20/2017	1.6 **Ratio**nal Expressions Discuss 1.6 questions 1 to 3 and 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49 among others HW #9: 1.6 questions 7, 11, 15, 19, 23, 27, 31, 31, 35, 39, 43, 47 **Quiz 3** on 1.4 and 1.5 Collecting **HW #7 and HW #8**	
9/25/2017	More on 1.6	
9/26/2017	**Discuss** 2.1 The Rectangular Coordinate Systems and Graphs (based on inquiries, I will assume everyone has graphed something) 2.2 Linear Equations in One Variable Discuss 2.2 questions 1 to 5 and 7, 11, 15, 19, 23, 27, 31, 31, 35, 39, 43, 46 HW #10: 2.2 questions 9, 13, 17, 21, 25, 29, 33, 37, 41, 45	
9/27/2017	2.5 Solving Quadratic Equations HW TBA Discuss 2.5 questions 1 to 5 and 7, 11, 15, 19, 23, 27, 31, 31, 35, 39, 43 HW #11 2.5 questions 9, 13, 17, 21, 25, 29, 33, 37, 41 **Quiz 4** on 1.6 Collecting **HW #9** TOCC O'odham Taṣ 9/29 TOCC closed Your fall break 10/2 to 10/4 BUSD closed (we honor your breaks) St. Francis Day piast 10/4 TOCC closed	
10/9/2017	2.5	
10/10/2017	2.4 Complex Numbers HW TBA Collecting **HW #10 and HW #11**	
10/11/2017	2.4 **Quiz 5** on 2.2 and 2.5	
10/16/2017	7.1 Systems of equations two variables	
10/17/2017	7.1	
10/18/2017	Review 2.1, 2.2, 2.4 and 2.5 for...	
10/23/2017	**TEST 2** topics TBA	

10/24/2017	2.6 Other Equations	
10/25/2017	2.6 10/26 TOCC's last day to withdraw from my course (**PSAT**)	
10/30/2017	2.6	
10/31/2017	2.7 Inequalities	
11/1/2017	2.7 **Quiz 6** on 2.4 and 7.1	
11/6/2017	2.7	
11/7/2017	3.1 Functions and Function Notation	
11/8/2017	3.1 **Quiz 7**on 2.6 and 2.7 No school 11/10/2017 Veteran's Day Observed	
11/13/2017	3.2 Domain and Range	
11/14/2017	3.2	
11/15/2017	3.3 Rate of change **Quiz 8** on 3.1 and 3.2	
11/20/2017	3.3	
11/21/2017	3.4 Composition of Functions Supplement #4 Algebra of Functions 11/22 BUSD O'odham Tas No Class 11/23-11/24 Thanksgiving (?) No Class	
11/27/2017	*other topics - instructor's choice*	
11/28/2017	*other topics - instructor's choice*	
11/29/2017	*other topics - instructor's choice*	
12/4/2017	*other topics - instructor's choice*	
12/5/2017	Review for...	
12/6/2017	COMPREHENSIVE FINAL EXAM	

DISCLAIMER: This syllabus is designed to evolve and change throughout the semester based on class progress and interests. You will be notified of any changes as they occur.

References:

- Guarin, Jorge. (2011.) *Course syllabus*.
- Hronopoulos, Sophia. (2012.) *Course syllabus*.
- Nabhan, Gary Paul. (1982.) *The Desert Smells Like Rain: A naturalist in Papago Indian Country.* San Francisco: North Point Press.
- Newberry, Teresa. (2012.) *Course syllabus*.
- Sun-bat, Catherine. (2014.) *Course syllabus*
- Tohono O'odham Community College core values website http://www.tocc.edu/core_values.htm (2015.)

Assignment	Date	Score
Test 1	9/18/2017	
Test 2	10/23/2017	
Final	12/6/2017	
Homework and Quizzes	various	200 possible points
Total		Add the numbers you have in this column = _____

The summary on how to pass my class:

- Show up
- Use our *T-Ṣoṣon*
- Prepare for quizzes and tests
- Expect the best for yourself and your Nation
- Review what we've covered in class
- Be brave
- Work on your homework
- Ask questions
- Remember to distribute
- Remember the difference between − and =
- *I-we:mta* - work together
- Observe BHS rules - TOCC isn't your only "boss"
- Reminder: Calculators allowed