Lincoln University
FALL 2017

COURSE: **MATH 10: COLLEGE MATHEMATICS** (Mondays, 3:30 –6:15 PM) 3 units

INSTRUCTOR: Guoliang Fang glfang2005@gmail.com
510-628-8037

OFFICE HOURS: Before and after class

TEXT: College Algebra, by Michael Sullivan, Pearson, 10th Edition, 2016
ISBN 978-0-321-9947-6
www.pearsonhighered.com/sullivan-10e-info/index.html
Required Tools: Microsoft Excel Spreadsheets
Optional: A scientific calculator

CATALOG DESCRIPTION:

Elementary algebra: fundamental algebraic concepts and operations, number bases, linear equations and inequalities, functions, graphing. Intermediate algebra: study of algebra including exponents and radical polynomials, geometric series, rational expressions, quadratic equations, and logarithms. (3 units)

COURSE LEARNING OUTCOMES AND ASSESSMENT:

- The students are expected to develop knowledge in the basic concepts and techniques of elementary and intermediate algebra; get complete coverage of the function and graph concepts, and learn how to apply them.
  Assessment: Homework, In-class participation, Quizzes, Midterm, Final exam
- Students will develop knowledge in elementary algebra including fundamental algebraic concepts and operations, number bases, linear equations and inequalities, functions, graphing, exponents and radical polynomials, geometric series, rational expressions, quadratic equations, and logarithms.
  - Assessment: Homework, In-class participation, Quizzes, Midterm, Final exam
- Students are expected to develop skills in problem solving and mathematical modeling using algebra and to build a solid foundation in the principles of mathematical thinking.
  - Assessment: Homework, In-class participation, Quizzes, Midterm, Final exam

INSTRUCTIONAL METHODS:

Lecture method is used in combination with case studies and outside readings, as assigned. The emphasis will be on learning. Every student must participate in an intensive preparation and classroom activity. The emphasis will be on learning by examples and solving problems. Every student is welcome to participate in intensive classroom activities and discussions. Reading and problem solving assignments will be given throughout the course. Video materials will be presented. There may be class discussions and group presentations by students on the project assignments during class.

CLASS ATTENDANCE:

Students are expected to attend class on a regular basis. Attendance is crucial to performing well in this course, as some of the material presented may not be found in the textbook. Further, the lecture and classroom demonstrations will emphasize and expand upon important topics found in the textbook. Thus, it is vital that you take thorough notes in class.

ASSIGNMENTS:

Most assignments will be from the textbook. Each assignment is due at the beginning of the following class. You can return your assignments electronically if you desire. Quizzes will take place at the beginning of the course, after collecting assignments and answering questions. Quizzes are designed to last 20 minutes and are based on the material in the assignment.

Please bring a ***hard copy*** of your ***typed and stapled*** homework assignment that has your name on it to class the day it is due. ***Please no e mailed assignments***. ***No late homework will be accepted!***

In accordance with the university policy on cheating and plagiarism, any student who does not do his/her own write-up completely independently on any assignment will fail the assignment.

EXAMS:

There will be two exams — a midterm and a final. To assess your learning in this course, exam questions will be derived from the lecture and textbook. Topics covered in lecture will be of major emphasis on the exam, and should be the focus of your textbook readings, though there will be some test questions found in the assigned readings but not covered in the lecture. To avoid guessing, there will be no multiple-choice questions on the exams. Exams may include conceptual or theoretical questions, and questions with applied scenarios. ***All exams are open books and open notes.***

QUIZZES:

To encourage attendance and to help students with assessment of their knowledge, there will be a set of unannounced quizzes given at the start of class. They will be based on lecture and any assigned reading. They will not be computational in nature, but rather conceptual questions intended to help students gauge how well they understand the material.

GRADING PLAN:

Percentage	Grade
90-100%	A
80-89%	B
70-79%	C
60-69%	D
below 60%	F

Weights	
Homework	20%
Quizzes and class participation	10%
Midterm	30%
Final	40%

CLASSROOM POLICY:

Please do not use personal computers, iPads or smart phones during the lecture. If you do need to text message or receive a call, please take it outside the classroom.

I am available and will do my best to help you learn and succeed. Questions and points of discussion are encouraged. I am also highly accessible for discussions if you wish to receive additional information or learn more about a certain topic or need help with data analysis. Please visit me during my office hours, or talk to me immediately after class, if you need study tips or additional help. No appointment is required for my office hours.

TENTATIVE CLASS SCHEDULE:

Week	Content
Week 1	Real numbers. Algebra essentials. Geometry essentials. Polynomials
Week 2	Factoring polynomials. Rational expressions
Week 3	Linear equations; quadratic equations, inequalities
Week 4	Distance and midpoint formulas
Week 5	Graphs of equations in two variables
Week 6	Functions
Week 7	Graphing functions. Transformations
Week 8	Midterm
Week 9	Polynomial functions and models
Week 10	Properties of rational functions
Week 11	Composite functions. One-to-one functions
Week 12	Financial models. Exponential growth and decay models. Newton's law
Week 13	Systems of linear equations. Matrix algebra
Week 14	Thanksgiving break
Week 15	Review for final exam
Week 16	Final exam.

Note: Instructor reserves the right to modify the content of this syllabus.

GOOD LUCK!

Syllabus Reviewed: 8/16/2017

Appendix. Program and Institution Learning Outcomes.

Institutional Learning Outcomes (ILOs)	
Graduates of the BA program of Lincoln University should be able to:	
1a	Develop the habits and skills necessary for processing information based on intellectual commitment, and using these skills to guide behavior.
2a	Raise important questions and problems, and formulate them clearly and precisely in oral or written communication
3a	Act with dignity and follow the principles concerning the quality of life of all people, recognizing an obligation to protect fundamental human rights and to respect the diversity of all cultures.
4a	Focus on individual and organizational benefits; communicate to co-workers and company's leadership in facilitation of collaborative environment; to be honest and transparent with regard to their work, and to be respectful of the work of others.
5a	Display sincerity and integrity in all their actions, which should be based on reason and moral principles; to inspire others by showing mental and spiritual endurance
6a	Show creativity by thinking of new and better goals, ideas, and solutions to problems; to be resourceful problem solvers.
7a	Define and explain the boundaries, divisions, styles and practices of the field, and define and properly use the principal terms in the field

Program Level Outcomes (PLOs)	
Students completing General Education courses in BA program will be able to:	
1	Demonstrate proficiency in college-level mathematics, English, sciences, humanities, and social sciences.
2	Represent mathematical information symbolically, visually, numerically, and verbally. Being able to interpret and apply arithmetical, algebraic, and geometric methods to solve problems.
3	Communicate effectively in multiple creative and academic writing genres by applying Standard American English.
4	Think critically and apply common sense in approaching and solving real-world problems.
5	Demonstrate proficiency in skills that sustain lifelong learning, particularly to think critically and responsibly in assessing, evaluating, and integrating information.
6	Understand the responsibilities of active citizenship, community engagement, and social responsibility.

Institutional Learning Outcomes (ILOs)	
Graduates of the BS program of Lincoln University should be able to:	
1a	Develop the habits and skills necessary for processing information based on intellectual commitment, and using these skills to guide behavior.
2a	Raise important questions and problems, and formulate them clearly and precisely in oral or written communication
3a	Act with dignity and follow the principles concerning the quality of life of all people, recognizing an obligation to protect fundamental human rights and to respect the diversity of all cultures.
4a	Focus on individual and organizational benefits; communicate to co-workers and company's leadership in facilitation of collaborative environment; to be honest and transparent with regard to their work, and to be respectful of the work of others.
5a	Display sincerity and integrity in all their actions, which should be based on reason and moral principles; to inspire others by showing mental and spiritual endurance
6a	Show creativity by thinking of new and better goals, ideas, and solutions to problems; to be resourceful problem solvers.
7a	Define and explain the boundaries, divisions, styles and practices of the field, and define and properly use the principal terms in the field

Program Level Outcomes (PLOs)	
Students completing General Education courses in BS program will be able to:	
1	Demonstrate proficiency in college-level mathematics, English, sciences, humanities, and social sciences.
2	Being able to interpret and apply arithmetical, algebraic, and statistical methods to solve problems
3	Communicate effectively in diagnostic field by applying Standard American English. Be able to use appropriate terminology accepted in DI field.
4	Think critically and apply common sense in approaching and solving DI and real-world problems.
5	Demonstrate proficiency in skills that sustain lifelong learning, particularly to think critically and responsibly. Be able to evaluate and integrate DI information.
6	Understand the responsibilities of active citizenship, community engagement, and social responsibility.
7	Develop basic understanding of bioethics' standards acceptable in the field of diagnostic imaging.