

Department	International College of Liberal Arts		
Semester	Fall 2024	Year Offered (Odd/Even/Every Year)	Every Year
Course Number	QREA102		
Course Title	College Algebra		
Prerequisites	None		
Course Instructor	JHINGAN Sanjay	Year Available (Grade Level)	1
Subject Area	Quantitative Reasoning & Natural Sciences	Number of Credits	3
Class Style	Lecture	Language of instruction	English

(NOTE 1) Depending on the class size and the capacity of the facility, we may not be able to accommodate all students who wish to register for the course

Course Description	<p>The course covers a broad range of topics whose understanding is necessary for taking upper level courses. It does not require any previous knowledge (except elementary high school mathematics).</p> <p>The course covers all the topics of a standard College Algebra course: (i) sets and numbers; (ii) Equations and inequalities; (iii) Coordinates and graphs; (iv) Functions (polynomials, rational functions; logarithms; exponentials; etc.); (v) Systems of equations; (vi) introduction to calculus.</p>
Class plan based on course evaluation from previous academic year	<p>Based on student feedback from previous offering of this course, there will be regular in-class quizzes. This will help students understand better their learning and over all progress.</p>

Course related to the instructor's practical experience (Summary of experience)	Not applicable.
Learning Goals	<p>At the end of this course, students should have gained basic literacy in mathematics and be able to:</p> <ul style="list-style-type: none"> (i) solve algebraic equations and inequalities; (ii) plot the graph of a function; (iii) perform algebraic simplifications with functions (e.g.: factorization and simplification of functional expressions involving trigonometric functions, polynomials, logarithms, exponentials, etc.); (iv) solve systems of linear equations; (v) do basic operations with matrices. <p>At the end of the course, the students should have enough preparation to follow more advanced courses (for example, statistics, calculus, and other subjects requiring basic quantitative skills.). The emphasis of the course will be on developing quantitative reasoning and critical thinking skills.</p>

iCLA Diploma Policy	DP2
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iCLA Diploma Policy

(DP1) To Value Knowledge – Having high oral and written communication skills to be able to both comprehend and transfer knowledge

(DP2) To Be Able to Adapt to a Changing World – Having critical, creative, problem-solving, intercultural skills, global and independent mindset to adopt to a changing world

(DP3) To Believe in Collaboration – Having a disposition to work effectively and inclusively in teams

(DP4) To Act from a Sense of Personal and Social Responsibility – Having good ethical and moral values to make positive impacts in the world

Active Learning Methods	Problem-Based Learning/Discussion, Debate
More details/supplemental information on Active Learning Methods	Students will be evaluated through in-class quizzes that test their ability to apply lecture concepts to real-world problems. Active participation in class discussions, where students relate learned concepts to real-life situations, is highly encouraged.
Use of ICT	UNIPA for communication with instructor, accessing class materials, and tracking attendance.

Contents of class preparation and review	Students are encouraged to access class material on UNIPA, and prepare themselves before coming to lecture.	Hours expected to be spent preparing for class (hours per week)	2 hours	Hours expected to be spent on class review (hours per week)	3 hours
Feedback Methods	UNIPA, and Office 365 will be used for regular feedback to quizzes. Student can use office hours for discussion.				

Grading Criteria		
Grading Methods	Grading Weights	Grading Content
In-class quizzes	100%	Seven quizzes will be conducted during the course.

Required Textbook(s)	Michael Sullivan: Algebra and Trigonometry, Pearson (all editions are ok) Robert Blitzer: College Algebra, Pearson (all editions are ok)
Other Reading Materials/URL	Any book on college algebra covering below mentioned topics is accepted for this course and students should feel free to choose any textbook they feel comfortable with. There are several books available online for free download. College Algebra, Jay Abramson (available for free download: https://openstax.org/details/books/college-algebra)
Plagiarism Policy	Plagiarism is the dishonest presentation of the work of others as if it were one's own. Duplicate submission is also treated as plagiarism. Depending on nature of plagiarism you may fail the assignment or the course. Repeated act of plagiarism will be reported to the University which may apply additional penalties.
Other Additional Notes (Outline crucial policies and info not mentioned above)	Students are not allowed to use mobile phones or laptops during lectures. Students can use digital note taking devices.

(NOTE 2) Class schedule is subject to change

Class Schedule	
Class Number	Content
Class 1	Lecture 1 Prerequisites: Basic mathematics, Sets and Numbers.
Class 2	Lecture 2 Prerequisites: Algebra Essentials, Polynomials etc.
Class 3	Lecture 3 Prerequisites: Review. In-class quiz 1.
Class 4	Lecture 4 Equations and Inequalities: Linear and Quadratic Equations.
Class 5	Lecture 5 Equations and Inequalities: Complex Numbers, Inequalities.
Class 6	Lecture 6 Equations and Inequalities: Review. In-class quiz 2.
Class 7	Lecture 7 Graphs: Connecting Algebra and Geometry.
Class 8	Lecture 8 Graphs: Lines and Circles.
Class 9	Lecture 9 Graphs: Review.
Class 10	Lecture 10 Functions and Graphs: How to Graph (properties).

Class 11	Lecture 11 Functions and Graphs: Graphing Techniques (transformations).
Class 12	Lecture 12 Functions and Graphs: Review. In-class quiz 3.
Class 13	Lecture 13 Linear and Quadratic Functions: : Linear Functions and Models.
Class 14	Lecture 14 Linear and Quadratic Functions: : Quadratic Functions and Models.
Class 15	Lecture 15 Linear and Quadratic Functions: Review. In-class quiz 4.
Class 16	Lecture 16 Polynomial and Rational Functions: Polynomial Functions and their graphs
Class 17	Lecture 17 Polynomial and Rational Functions: Rational Functions and their graphs
Class 18	Lecture 18 Polynomial and Rational Functions: Review.
Class 19	Lecture 19 Transcendental functions: : Exponential and Logarithmic Functions
Class 20	Lecture 20 Transcendental functions: : Financial Models, Growth and Decay models
Class 21	Lecture 21 Transcendental functions: Review. In-class quiz 5.

Class 22	Lecture 22 System of Equations: Matrices
Class 23	Lecture 23 System of Equations: Determinants
Class 24	Lecture 24 System of Equations: Matrix Algebra
Class 25	Lecture 25 System of Equations: Review. In-class quiz 6.
Class 26	Lecture 26 Introduction to Calculus: Limits
Class 27	Lecture 27 Introduction to Calculus: Differentiation
Class 28	Lecture 28 Introduction to Calculus: Integration
Class 29	Lecture 29 Introduction to calculus: Partial Differentiation
Class 30	Lecture 30 Introduction to calculus: Review. In class quiz 7.