University of Hawaii Maui College
MATH 82 - Accelerated Algebra

1. **Course Alpha. Please click on the ? to the right for help.**

   MATH

2. **Course Number. Please click on the ? to the right for help.**

   82

3. **Course Title/Catalog Title. Please click on the ? to the right for help.**

   Accelerated Algebra

4. **Number of Credits. Please click on the ? to the right for help.**

   4

5. **Contact Hours/Type. Please click on the ? to the right for help.**

   - Hour lecture/lab (4)

6. **Course Description. Please click on the ? to the right for help.**

   Covers elementary algebra topics. Topics include operations with real numbers; linear equations and inequalities; graphing; linear systems, properties of exponents; operations on polynomials; factoring; rational expressions and equations; roots and radicals; quadratic equations; and applications.

7. **Pre-Requisites. Please click on the ? to the right for help.**

   MATH 22 with grade C or better or placement at least MATH 82, or consent.

8. **Co-requisites.**

9. **Recommended Preparation.**

   COMPASS Reading placement at least ENG 21.

10. **Is this a cross-listed course? Please click on the ? to the right for help.**

    NO

11. **Reason for Proposal. Why is this course being proposed or modified? This question requires specific information as part of the explanation. Please click on the ? to the right for help.**

    As part of an effort to align all below 100-level math courses in the system, we need to change the course description and SLO's to match the agreed upon verbage.

12. **Effective Semester and Year. For new or modified courses, the effective year is one year from the semester proposed. For example, if proposed in Spring 2012, the effective semester is Spring 2013. Please click on the ? to the right for help.**

    Spring 2015

13. Grading Method. What grading methods may be used for this course? Please click on the ? to the right for help.

- Other, use next box (0)
  A-F, N, W grades only

14. Is this course repeatable for credit? How often can this course be counted toward a degree or certificate? Please click on the ? to the right for help.

NO

15. Course Student Learning Outcomes (SLOs). DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "COURSE LEARNING OUTCOMES" and enter in that screen. Please click on the ? to the right for help.

Course SLO/Competency	Demonstrate mathematical skills needed to successfully complete transfer level courses that require an algebraic foundation.	Model and solve level-appropriate real-world applications algebraically
review solving linear equations and inequalities	☑	
identify quadrants and plot points on a Cartesian coordinate system	☑	
graph linear equations & inequalities in two variables using a table of values, x- & y-intercepts, & slope and y-intercept	☑	
identify equations of horizontal, vertical, parallel and perpendicular lines, and graph them	☑	
write the equation of a line in y = mx + b form	☑	
determine the equation of a line given the graph of the line, the slope and a point on the line, or two points on the line	☑	
solve systems of linear equations in two variables by substitution, elimination, and graphing	☑	
set up and solve application problems involving linear equations, inequalities, and systems of equations	☑	☑
simplify expressions with integer exponents using the product, quotient and power rules	☑	
perform operations with polynomials (add, subtract, multiply, divide, simplify and evaluate)	☑	
add, subtract, multiply, and divide rational expressions, and simplify complex fractions	☑	
solve rational equations (equations that require factoring expressions and those that do not)	☑	
approximate square roots, evaluate and simplify radical expressions (including addition, subtraction, multiplication and division of square roots)	☑	
solve radical equations (those that do not result in quadratic equations, those that require using the principle of squaring, and those that require the square root property of equations)	☑	
use the Pythagorean Theorem to solve application problems	☑	☑
factor general trinomials of the form: $ax^2 + bx + c$ where a, b, and c are integers	☑	
recognize and factor polynomials (greatest common factor, difference of two squares, perfect square trinomials, and using grouping)	☑	
solve quadratic equations (by quadratic formula, factoring, and completing the square)	☑	
solve application problems involving quadratic equations	☑	☑
identify quadratic equations and graph them by plotting points	☑	
identify the vertex, x- and y-intercepts, and whether the graph opens up or down	☑	
use appropriate technology to solve problems of all types	☑	

Course SLO
Demonstrate mathematical skills needed to successfully complete transfer level courses that require an algebraic foundation.
Model and solve level-appropriate real-world applications algebraically

16. Course Competencies. DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "COURSE COMPETENCIES/ISSUES/SKILLS" and enter text in that screen. Course competencies are smaller, simpler tasks that connect to and facilitate the SLOs.

Competency
review solving linear equations and inequalities
identify quadrants and plot points on a Cartesian coordinate system
graph linear equations & inequalities in two variables using a table of values, x- & y-intercepts, & slope and y-intercept
identify equations of horizontal, vertical, parallel and perpendicular lines, and graph them
write the equation of a line in $y = mx + b$ form
determine the equation of a line given the graph of the line, the slope and a point on the line, or two points on the line
solve systems of linear equations in two variables by substitution, elimination, and graphing
set up and solve application problems involving linear equations, inequalities, and systems of equations
simplify expressions with integer exponents using the product, quotient and power rules
perform operations with polynomials (add, subtract, multiply, divide, simplify and evaluate)
add, subtract, multiply, and divide rational expressions, and simplify complex fractions
solve rational equations (equations that require factoring expressions and those that do not)
approximate square roots, evaluate and simplify radical expressions (including addition, subtraction, multiplication and division of square roots)
solve radical equations (those that do not result in quadratic equations, those that require using the principle of squaring, and those that require the square root property of equations)
use the Pythagorean Theorem to solve application problems
factor general trinomials of the form: $ax^2 + bx + c$ where a, b, and c are integers
recognize and factor polynomials (greatest common factor, difference of two squares, perfect square trinomials, and using grouping)
solve quadratic equations (by quadratic formula, factoring, and completing the square)
solve application problems involving quadratic equations
identify quadratic equations and graph them by plotting points
identify the vertex, x- and y-intercepts, and whether the graph opens up or down
use appropriate technology to solve problems of all types

17. **Recommended Course Content and Timeline. The course content facilitates the course competencies. Course content may be organized by weeks, units, topics or the like.**

18. **Program Learning Outcomes. DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "PLOs" and enter text in that screen. Program Student Learning Outcomes (PLOs) supported by this course. If you are not a "program" use the Liberal Arts PLOs, view them by clicking on ? icon to the right.**

19. **College-wide Academic Student Learning Outcomes (CASLOs). FIRST, fill out the CASLO grid located in the UHMC tab above. Click on the HELP icon for tips on determining support for the CASLOs and indicate your choices below by clicking on the box in front of each supported CASLO. NOTE: Our campus does not use the Preparatory Level, Level 1 and Level 2 designations in the chart below.**

	Creativity - Able to express originality through a variety of forms.
☑	**Critical Thinking** - Apply critical thinking skills to effectively address the challenges and solve problems. ☑ Preparatory Level
	Information Retrieval and Technology - Access, evaluate, and utilize information effectively, ethically, and responsibly.
	Oral Communication - Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.
☑	**Quantitative Reasoning** - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantative reasoning accurately and appropriately. ☑ Level 2
	Written Communication - Write effectively to convey ideas that meet the needs of specific audiences and purposes.

GenED SLO
Critical Thinking - Apply critical thinking skills to effectively address the challenges and solve problems.

Quantitative Reasoning - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantative reasoning accurately and appropriately.

20. Linking. CLICK ON CHAIN LINK ICON IN UPPER RIGHT HAND CORNER TO BEGIN LINKING. Please click on the ? to the right for help.

21. Method(s) of delivery appropriate for this course. Please clickon the ? to the right for help.

- Classroom/Lab (0)
- Hybrid (0)
- Online (0)

22. Text and Materials, Reference Materials, and Auxiliary Materials. Please clickon the ? to the right for help.

- Elayn Martin-Gay. Developmental Mathematics. 2e. Pearson, 2013.

23. Maximum enrollment. Please click on the ? to the right for help.

22

24. Particular room type requirement. Is this course restricted to particular room type? Please click on the ? to the right for help.

YES
This course must be taught in a computer room.

25. Special scheduling considerations. Are there special scheduling considerations for this course? Please click on the ? to the right for help.

NO

26. Are special or additional resources needed for this course? Please click on the ? to the right for help.

27. Does this course require special fees to be paid for by students? Please click on the ? to the right for help.

NO

28. Does this course change the number of required credit hours in a degree or certificate? Please click on the ? to the right for help.

No.

29. Course designation(s) for the Liberal Arts A.A. degree and/or for the college's other associate degrees. Please clickon the ? to the right for help.

Degree	Program	Category
Associate in Arts:		
AS:		
AAS:		
BAS:		
Developmental/Remedial:	Developmental	

30. Course designation(s) for other colleges in the UH system.

31. Indicate the year and page # of UHMC catalog referred to. For new or modified courses, please indicate the catalog pages that need to be modified and provide a sheet outlining those changes.

2013-2014 Catalog, page 131.

32. College-wide Academic Student Learner Outcomes (CASLOs). Please click on the HELP icon for more information.

Standard 1 - Written Communication Write effectively to convey ideas that meet the needs of specific audiences and purposes.	
Outcome 1.1 - Use writing to discover and articulate ideas.	0
Outcome 1.2 - Identify and analyze the audience and purpose for any intended communication.	0
Outcome 1.3 - Choose language, style, and organization appropriate to particular purposes and audiences.	0
Outcome 1.4 - Gather information and document sources appropriately.	0
Outcome 1.5 - Express a main idea as a thesis, hypothesis, or other appropriate statement.	0
Outcome 1.6 - Develop a main idea clearly and concisely with appropriate content.	0
Outcome 1.7 - Demonstrate a mastery of the conventions of writing, including grammar, spelling, and mechanics.	0
Outcome 1.8 - Demonstrate proficiency in revision and editing.	0
Outcome 1.9 - Develop a personal voice in written communication.	0
Standard 2 - Quantitative Reasoning Synthesize and articulate information using appropriate mathematical methods to solve problems of quantative reasoning accurately and appropriately.	
Outcome 2.1 - Apply numeric, graphic, and symbolic skills and other forms of quantitative reasoning accurately and appropriately.	3
Outcome 2.2 - Demonstrate mastery of mathematical concepts, skills, and applications, using technology when appropriate.	3
Outcome 2.3 - Communicate clearly and concisely the methods and results of quantitative problem solving.	1
Outcome 2.4 - Formulate and test hypotheses using numerical experimentation.	0
Outcome 2.5 - Define quantitative issues and problems, gather relevant information, analyze that information, and present results.	1
Outcome 2.6 - Assess the validity of statistical conclusions.	0
Standard 3 - Information Retrieval and Technology. Access, evaluate, and utilize information effectively, ethically, and responsibly.	
Outcome 3.1 - Use print and electronic information technology ethically and responsibly.	0
Outcome 3.2 - Demonstrate knowledge of basic vocabulary, concepts, and operations of information retrieval and technology.	0
Outcome 3.3 - Recognize, identify, and define an information need.	0
Outcome 3.4 - Access and retrieve information through print and electronic media, evaluating the accuracy and authenticity of that information.	0
Outcome 3.5 - Create, manage, organize, and communicate information through electronic media.	0
Outcome 3.6 - Recognize changing technologies and make informed choices about their appropriateness and use.	0
Standard 4 - Oral Communication Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.	
Outcome 4.1 - Identify and analyze the audience and purpose of any intended communication.	0
Outcome 4.2 - Gather, evaluate, select, and organize information for the communication.	0
Outcome 4.3 - Use language, techniques, and strategies appropriate to the audience and occasion.	0
Outcome 4.4 - Speak clearly and confidently, using the voice, volume, tone, and articulation appropriate to the audience and occasion.	0
Outcome 4.5 - Summarize, analyze, and evaluate oral communications and ask coherent questions as needed.	0
Outcome 4.6 - Use competent oral expression to initiate and sustain discussions.	0
Standard 5 - Critical Thinking Apply critical thinking skills to effectively address the challenges and solve problems.	
Outcome 5.1 - Identify and state problems, issues, arguments, and questions contained in a body of information.	0

Outcome 5.2 - Identify and analyze assumptions and underlying points of view relating to an issue or problem.	0
Outcome 5.3 - Formulate research questions that require descriptive and explanatory analyses.	0
Outcome 5.4 - Recognize and understand multiple modes of inquiry, including investigative methods based on observation and analysis.	0
Outcome 5.5 - Evaluate a problem, distinguishing between relevant and irrelevant facts, opinions, assumptions, issues, values, and biases through the use of appropriate evidence.	1
Outcome 5.6 - Apply problem-solving techniques and skills, including the rules of logic and logical sequence.	1
Outcome 5.7 - Synthesize information from various sources, drawing appropriate conclusions.	0
Outcome 5.8 - Communicate clearly and concisely the methods and results of logical reasoning.	0
Outcome 5.9 - Reflect upon and evaluate their thought processes, value system, and world views in comparison to those of others.	0
Standard 6 - Creativity Able to express originality through a variety of forms.	
Outcome 6.1: Generate responses to problems and challenges through intuition and non-linear thinking.	0
Outcome 6.2: Explore diverse approaches to solving a problem or addressing a challenge.	0
Outcome 6.3: Sustain engagement in activities without a preconceived purpose.	0
Outcome 6.4: Apply creative principles to discover and express new ideas.	0
Outcome 6.5: Demonstrate the ability to trust and follow one's instincts in the absence of external direction	0
Outcome 6.6: Build upon or adapt the ideas of others to create novel expressions or new solutions.	0

33. Additional Information