

University of Hawaii Maui College

MATH 103 - College 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.

103

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

College Algebra

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

3

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

- Hour lecture (3)

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

Analyzes and interprets the behavior and nature of functions including linear, polynomial, exponential, log, absolute value, and peicwise defined functions;solves systems of equations; solves application problems.

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

MATH 82 with grade C or better or placement at least MATH 103, and ENG 22 with grade C or better or placement at ENG 100, or consent.

8. **Co-requisites.**

None

9. **Recommended Preparation.**

At least 11th grade reading skills.

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.

This is a 5 year review that populates fields in Curriculum Central.

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 2016

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

- Standard (Letter,Cr/NCr,Audit) (0)

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 | Perform algebraic operations on linear, polynomial, rational, exponential, logarithmic and radical expressions | Solve linear, polynomial, rational, exponential and radical equations and/or inequalities. | Apply elementary properties of linear, polynomial, rational, exponential, logarithmic and radical functions to solve application problems. | Construct graphs of linear, polynomial, rational, exponential, logarithmic and radical functions. | Incorporate technology to solve problems and analyze graphs. | Select the appropriate function and use it to model application problems. | Explain solutions to problems using numerical, graphical, symbolic and verbal modes. |
|---|--|--|--|---|--|---|--|
| Apply appropriate mathematical processes to solve problems that can be modeled by algebraic functions including, but not limited to, linear, quadratic and basic polynomial, rational, exponential and logarithmic. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> | |
| Demonstrate effective use of technology in solving such problems. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Communicate the solution of such problems using Standard English and numeric, graphic or symbolic representations. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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| Course SLO/PSLO | Demonstrate an understanding of theories, | Use theories, concepts, and practices of a field of study | Apply theories and/or methods of a field of study |
|-----------------|---|---|---|

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|---|--|--|---|
| | practices, histories, and key issues of a field of study using essential terminology and concepts of the discipline. | to analyze evidence, artifacts, and/or texts and produce interpretations, hypotheses, evaluations, or conclusions. | to perform practical, scholarly, and/or creative tasks that respond to social, cultural, environmental, or economic issues. |
| Apply appropriate mathematical processes to solve problems that can be modeled by algebraic functions including, but not limited to, linear, quadratic and basic polynomial, rational, exponential and logarithmic. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Demonstrate effective use of technology in solving such problems. | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Communicate the solution of such problems using Standard English and numeric, graphic or symbolic representations. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

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 |
| Perform algebraic operations on linear, polynomial, rational, exponential, logarithmic and radical expressions |
| Solve linear, polynomial, rational, exponential and radical equations and/or inequalities. |
| Apply elementary properties of linear, polynomial, rational, exponential, logarithmic and radical functions to solve application problems. |
| Construct graphs of linear, polynomial, rational, exponential, logarithmic and radical functions. |
| Incorporate technology to solve problems and analyze graphs. |
| Select the appropriate function and use it to model application problems. |
| Explain solutions to problems using numerical, graphical, symbolic and verbal modes. |

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.

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| Content |
| Weeks 1-2 Review |
| Weeks 2-5 Equations and Inequalities |
| Weeks 6-10 Graphs and Functions |
| Weeks 11 Polynomial and Rational Functions |
| Weeks 12-13 Inverse, Exponential, and Logarithmic Functions |

| |
|----------------------------------|
| Weeks 14-15 Systems of Equations |
| Week 16 Prepare for Final Exam |

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.**

| |
|---|
| Program SLO |
| Demonstrate an understanding of theories, practices, histories, and key issues of a field of study using essential terminology and concepts of the discipline. |
| Use theories, concepts, and practices of a field of study to analyze evidence, artifacts, and/or texts and produce interpretations, hypotheses, evaluations, or conclusions. |
| Apply theories and/or methods of a field of study to perform practical, scholarly, and/or creative tasks that respond to social, cultural, environmental, or economic issues. |

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. |
| <input checked="" type="checkbox"/> | Critical Thinking - Apply critical thinking skills to effectively address the challenges and solve problems. <input checked="" type="checkbox"/> 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. |
| <input checked="" type="checkbox"/> | Quantitative Reasoning - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately. <input checked="" type="checkbox"/> Preparatory Level |
| | 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 quantitative 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 click on the ? to the right for help.

- Cable TV (0)
- Classroom/Lab (0)
- HITS/Interactive TV (0)
- Hybrid (0)
- Online (0)

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

College Algebra Texts such as Essentials of College Algebra By Lial, Hornsby, Schneider and Daniels or College Algebra by Blitzer

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

27

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

YES
Computer Classroom

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.

No

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

NO
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 click on the ? to the right for help.

| Degree | Program | Category |
|-----------------------------|----------------------|--|
| Associate in Arts: | Liberal Arts | FS - Symbolic Reasoning LE - Elective |
| AS: | Human Services - All | QR - Quantitative Reasoning |
| AAS: | | |
| BAS: | | |
| Developmental/ Remedial: | | |

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

MATH 103 at other UHCC's (not available at Hawaii CC)

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.

UHMC General Catalog 2014-2015 page 131 - slight change to shorten description

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

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| 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. | | 1 |
| 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. | | 1 |
| 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 |

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| Standard 2 - Quantitative Reasoning Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative 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. | | 3 |
| Outcome 2.4 - Formulate and test hypotheses using numerical experimentation. | | 1 |
| Outcome 2.5 - Define quantitative issues and problems, gather relevant information, analyze that information, and present results. | | 2 |
| 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. | | 1 |
| 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. | | 1 |
| 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. | | |

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| Outcome 5.1 - Identify and state problems, issues, arguments, and questions contained in a body of information. | 2 |
| Outcome 5.2 - Identify and analyze assumptions and underlying points of view relating to an issue or problem. | 1 |
| 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. | 3 |
| Outcome 5.7 - Synthesize information from various sources, drawing appropriate conclusions. | 1 |
| Outcome 5.8 - Communicate clearly and concisely the methods and results of logical reasoning. | 2 |
| 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. | 1 |
| 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