



# North Central Michigan College Master Course Syllabus

## PART 1:

Course Name: Intermediate Algebra

Course Number: MATH 120

Credit Hrs. 4      Lecture Hrs. 4      Lab Hrs. 0      Clinical Hrs. 0      Variable Hrs. 0

Total Hours of Instruction: 4      Total Contact Hours: 70.4  
(Total Contact hour's formula: (lecture hrs. + lab hrs. + clinical hrs) x 17.6)

### Course Description:

A review of properties of real numbers; first degree equations and inequalities; polynomials and exponents; rational expressions; rational exponents and radicals; linear equations and inequalities; quadratic equations and inequalities; systems of equations and inequalities; exponential and logarithmic functions. Emphasis will be on utilizing these skills in problem solving situations.

Prerequisite (s): Placement in this course is determined by ACT, SAT and/or North Central Assessment/Placement scores.

Co-requisite (s): None

### Course Objectives:

Upon completion of this course successful students will be able to:

- Solve linear equations, rational equations, quadratic equations, systems of equations and inequalities, and utilize these skills in critical thinking and problem solving applications.
- Apply their acquired knowledge to simplify and solve mathematical models, functions, polynomials, rational expressions, radicals and logarithms.
- Recognize mathematical relationships and functions both implicit and explicit, and translate applications into mathematical equations.
- Produce an accurate graph to describe the mathematical relationship between variables.

Reasonable accommodations can be provided for students with documented disabilities. Please contact Learning Support Services to arrange for these (231)348-6687 or (231)348-6817, Room 533 SCRC.



# North Central Michigan College Master Course Syllabus

## PART 2:

### Course Objectives and Linked Lumina DQP Outcomes

See **PART 3** of this syllabus for the complete language of each Lumina DQP outcome.

*Please identify the Lumina DQP outcome(s) supported by the course objectives. List each course objectives (from **PART 1**), followed by the corresponding Lumina DQP Outcome number(s) in parentheses. (See the example.)*

- Solve linear equations, quadratic equations, systems of equations and inequalities, and utilize these skills in critical thinking and problem solving applications. (DQP 2,10,13)
- Apply their acquired knowledge to simplify and solve mathematical models, functions, polynomials, rational expressions, radicals and logarithms. (DQP 2,13)
- Recognize mathematical relationships and functions both implicit and explicit, and translate applications into mathematical equations. (DQP 2,10,13)
- Produce an accurate graph to describe the mathematical relationship between variables. (DQP 2,13)



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## **Suggested Methods of Instruction:**

Lecture, discussion, collaborative group work, assignments, handouts, computer aided instruction lab, drill and practice and exercise sets.

## **Suggested Methods of Assessment and Evaluation:**

Quizzes, tests, comprehensive final exam, computer exercise sets.

## **Adopted Text at Time of Course Adoption/Revision:**

Required: MyMathLab

Optional: Intermediate Algebra for College Students, 6<sup>th</sup> ed. by Blitzer

## **Topics Covered During the Semester:**

*Sequence of topics and time allowance are at the discretion of the instructor*

Week 1	Sets of numbers, order of operations, graphing equations, solving linear equations, integral exponents, formulas, scientific notation
Week 2	Functions, slope, equation of a line, function applications
Week 3	Systems of equations
Week 4	Solving inequalities, absolute value equations and inequalities
Week 5	Linear inequalities, linear programming, operations with polynomials
Week 6	Factoring polynomials
Week 7	Solving polynomial equations, simplifying rational expressions,
Week 8	Operations with rational expressions, solving rational equations
Week 9	Applications of rational equations, division of polynomials
Week 10	Direct, inverse and joint variation, radical expressions
Week 11	Operations with radicals
Week 12	Radical equations, complex numbers
Week 13	Quadratic formula
Week 14	Logarithms
Week 15	Review
Week 16	Exam

Part 1 & Part 2 approved by CRDAP on: 02 03 17

Part 2 approved by AD:

Date:

Part 2 approved by CRDAP Chair:

Date:

Rev02/15



# North Central Michigan College Master Course Syllabus

## **PART 3:**

**LUMINA DQP OUTCOMES** – Use this reference sheet for **PART 2** of Master Course Syllabus.

### **Specialized Knowledge**

1. Describes the scope and principal features of the field of study, citing at least some of its core theories and practices, and offers a similar explication of at least one related field.
2. Illustrates contemporary terminology used in the field.
3. Generates substantially error-free products, reconstructions, data, juried exhibits or performances as appropriate to the field.

### **Broad Integrative Knowledge**

4. Describes how existing knowledge or practice is advanced, tested and revised
5. Describes and examines a range of perspectives on key debates and their significance both within the field and in society.
6. Illustrates core concepts of the field while executing analytical, practical or creative tasks.
7. Selects and applies recognized methods of the field in interpreting characteristic discipline-based problems.
8. Assembles evidence relevant to characteristic problems in the field, describes the significance of the evidence, and uses the evidence in analysis of these problems.
9. Describes the ways in which at least two disciplines define, address and interpret the importance of a contemporary challenge or problem in science, the arts, society, human services, economic life or technology.

### **Intellectual Skills – Analytic Inquiry**

10. Identifies, categorizes and distinguishes among elements of ideas, concepts, theories and/or practical approaches to standard problems.

### **Intellectual Skills – Use of Information Resources**

11. Identifies, categorizes, evaluates and cites multiple information resources necessary to engage in projects, papers or performance in his or her program.

### **Intellectual Skills – Engaging Diverse Perspectives**

12. Describes how knowledge from different cultural perspectives would affect his or her interpretations of prominent problems in politics, society, the arts and/or global relations.

### **Intellectual Skills – Communication Fluency**

13. Presents accurate calculations and symbolic operations, and explains how such calculations and operations are used in either his or her specific field of study or in interpreting social and economic trends.
14. Presents substantially error-free prose in both argumentative and narrative forms to general and specialized audiences.

### **Applied Learning**

15. Describes in writing at least one substantial case in which knowledge and skills acquired in academic settings are applied to a challenge in a non-academic setting; applies that learning to the question; and analyzes at least one significant concept or method related to his or her course of study in light of learning outside the classroom.
16. Locates, gathers and organizes evidence on an assigned research topic addressing a course-related question or a question of practice in a work or community setting; offers and examines competing hypotheses in answering the question.

### **Civic Learning**

17. Describes his or her own civic and cultural background, including its origins and development, assumptions, and predispositions.
18. Describes diverse positions, historical and contemporary, on selected democratic values or practices, and presents his or her own position on a specific problem where one or more of these values or practices are involved.
19. Takes an active role in a community context (work, service, co-curricular activities, etc.), and examines the civic issues encountered and the insights gained from the community experience.

The Degree Qualifications Profile was adopted by CRDAP: April 11, 2012