

Course Outline of Record

1. Course Code: MATH-370F
2.
  - a. Long Course Title: Arithmetic of Rational Numbers-Module 2
  - b. Short Course Title: Rational Numbers II
3.
  - a. Catalog Course Description:  
 This is a course in basic arithmetic of rational numbers. Topics include definition of mixed numbers; adding and subtracting of rational numbers with common denominators; converting between mixed numbers and improper fractions; graphing rational numbers on the real number line; finding the least common multiple of integers using prime factorization; and applying rational numbers to real life situations. Additional emphasis includes order of operations on rational numbers and natural number exponents with mixed number bases.
  - b. Class Schedule Course Description:  
 This course will focus on adding and subtracting of fractions, with common denominators, with applications to real life situations.
  - c. Semester Cycle (if applicable): N/A
  - d. Name of Approved Program(s):
    - RATIONAL NUMBERS Certificate of Competency
4. Total Units: 0      Total Semester Hrs: 1.50-18.00  
 Lecture Units: 0      Semester Lecture Hrs: 0  
 Lab Units: 0      Semester Lab Hrs: 1.50-18.00  
 Class Size Maximum: 70      Allow Audit: No  
 Repeatability Noncredit - Unlimited  
 Justification 0
5. Prerequisite or Corequisite Courses or Advisories:  
*Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm I-A)*  
 Advisory: MATH 370C with a minimum grade of P and  
 Advisory: MATH 370D with a minimum grade of P and  
 Advisory: MATH 370E with a minimum grade of P
6. Textbooks, Required Reading or Software: (List in APA or MLA format.)
  - a. Martin-Gay (2014). Basic College Mathematics with Early Integers (3rd/e). Pearson. ISBN: 9780321922342  
 College Level: No  
 Flesch-Kincaid reading level: N/A
  - b. Department of Math, College of the Redwoods (2013). Prealgebra Textbook Department of Math College of the Redwoods.  
 College Level: No  
 Flesch-Kincaid reading level: N/A
7. Entrance Skills: *Before entering the course students must be able:*
  - a.  
 Demonstrate proficiency in basic integer number facts such as addition, subtraction, multiplication and division of integers.
    - MATH 370D - Demonstrate proficiency in basic integer number facts such as multiplication and division of integers.
    - MATH 370C - Demonstrate proficiency in basic number facts such as addition and subtraction of integers.
  - b.  
 Compute using the basic operations of addition, subtraction, multiplication and division on the integers.

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- MATH 370C - Compute using the basic operations of addition and subtraction on the integers.
- MATH 370D - Compute using the basic operations of multiplication and division on the integers.

c.

Apply the order of operations to simplify expressions involving integers.

- MATH 370D - Apply the order of operations to simplify expressions involving integers.

d.

Demonstrate proficiency in basic rational number facts such as multiplication and division of rational numbers, writing equivalent fractions with different denominators, and simplifying rational numbers using prime factorization.

- MATH 370E - Demonstrate proficiency in basic rational number facts such as multiplication and division of rational numbers.
- MATH 370E - Apply fundamental property of fractions and prime factorization to write equivalent fractions with different denominators.
- MATH 370E - Apply prime factorization to simplify rational numbers.

e.

Compute using the basic operations of multiplication and division on the rational numbers.

- MATH 370E - Compute using the basic operations of multiplication and division on the rational numbers.

f.

Compute the value of expressions containing natural number exponents with rational number bases.

- MATH 370E - Compute the value of expressions containing natural number exponents with rational number bases.

### 8. Course Content and Scope:

Lecture:

none

Lab: *(if the "Lab Hours" is greater than zero this is required)*

1. Complete self-pace lab assignments at a mastery level.
2. Participate in skill lab by working on either paper or web based worksheets to practice skills learned in textbook.
3. Receive academic assistant from instructor, ISAs and tutors on individual basis.
4. Complete and pass timed final exam.

### 9. Course Student Learning Outcomes:

1.

Demonstrate number sense, which is characterized by the ability to judge relative sizes of numbers, perform computations with numbers in different representations, and assess the reasonableness of results.

2.

Use the information contained in application problems to identify and execute methods of solution that involve arithmetic skills, and evaluate the reasonableness of the results obtained.

### 10. Course Objectives: *Upon completion of this course, students will be able to:*

- a. Demonstrate proficiency in basic rational number facts such as addition and subtraction of rational numbers with common denominators.
- b. Compute using the basic operations of addition and subtraction on the rational numbers with common denominators.
- c. Convert between improper fractions and mixed numbers.
- d. Graph proper fractions and mixed numbers on the number line.

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- e. Apply prime factorization to find least common multiples.
- f. Compute natural number exponents with mixed number bases.
- g. Apply the order of operations to simplify expressions involving rational numbers.
- h. Apply the basic operations on rational numbers to solve application problems.
- i. Comprehend the concept of a mixed number as a sum of natural number and proper fraction.
- j. Compute using the basic operations of multiplication and division on mixed numbers.

11. Methods of Instruction: (*Integration: Elements should validate parallel course outline elements*)

- a. Demonstration, Repetition/Practice
- b. Laboratory
- c. Technology-based instruction
- d. Tutorial

Other Methods:

Teamwork; Discussion, to review, analyze, and evaluate various methods of solution; Skills lab participation

12. Assignments: (*List samples of specific activities/assignments students are expected to complete both in and outside of class.*)

In Class Hours: 18.00

Outside Class Hours: 9.00

a. In-class Assignments

1. Complete lab assignments,
2. Participate in discussion groups to review, analyze, diagnose, and evaluate various methods of solution,
3. Complete examinations involving problems that require the application of studied principles and skills to new situations as well as problems that mimic those done on lab assignments.

b. Out-of-class Assignments

1. Read the textbook and any supplementary materials.

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*

- Self-paced testing
- Computational/problem solving evaluations
- Mid-term and final evaluations

14. Methods of Evaluating: Additional Assessment Information:

15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*

PO-GE C4.b - Language & Rationality (Communication & Analytical Thinking)

Apply logical and critical thinking to solve problems; explain conclusions; and evaluate, support, or critique the thinking of others.

IO - Scientific Inquiry

Analyze quantitative and qualitative information to make decisions, judgments, and pose questions.

IO - Global Citizenship - Scientific & Technological Literacy

Utilize quantitative expression in a variety of contexts. These would include units of measurement, visual representations, and scales and distributions.

16. Comparable Transfer Course

**University System**

**Campus**

**Course Number**

**Course Title**

**Catalog Year**

17. Special Materials and/or Equipment Required of Students:

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18. Materials Fees:  Required Material?

<b>Material or Item</b>	<b>Cost Per Unit</b>	<b>Total Cost</b>
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19. Provide Reasons for the Substantial Modifications or New Course:

This course would address the students who place into the lower part of Math-70 and need more time to develop foundational numeracy skills in rational numbers.

20. a. Cross-Listed Course (Enter Course Code): *N/A*  
 b. Replacement Course (Enter original Course Code): *N/A*

21. Grading Method (choose one): Pass/No Pass Only

22. MIS Course Data Elements

- a. Course Control Number [CB00]: CCC000580308
- b. T.O.P. Code [CB03]: 170100.00 - Mathematics, General
- c. Credit Status [CB04]: N - Noncredit
- d. Course Transfer Status [CB05]: C = Non-Transferable
- e. Basic Skills Status [CB08]: 1B = Course is a basic skills course
- f. Vocational Status [CB09]: Not Occupational
- g. Course Classification [CB11]: K - Other Noncredit Enhanced Funding
- h. Special Class Status [CB13]: N - Not Special
- i. Course CAN Code [CB14]: *N/A*
- j. Course Prior to College Level [CB21]: D = 4 Levels Below
- k. Course Noncredit Category [CB22]: C - Elementary and Secondary Basic Skills
  - l. Funding Agency Category [CB23]: Y = Not Applicable
- m. Program Status [CB24]: 1 = Program Applicable

Name of Approved Program (if program-applicable): RATIONAL NUMBERS

*Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)*

23. Enrollment - Estimate Enrollment

First Year: 450  
 Third Year: 450

24. Resources - Faculty - Discipline and Other Qualifications:

- a. Sufficient Faculty Resources: Yes
- b. If No, list number of FTE needed to offer this course: *N/A*

25. Additional Equipment and/or Supplies Needed and Source of Funding.

A computer lab with 70 computers is needed.

26. Additional Construction or Modification of Existing Classroom Space Needed. (Explain:)

*N/A*

27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES

Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes

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28. Originator Thang Le Origination Date 08/25/16