NEOSHO COUNTY COMMUNITY COLLEGE
MASTER COURSE SYLLABUS

COURSE IDENTIFICATION

Course Code/Number: MATH 204

Course Title: Mathematics for Ed I

Division: [x] Applied Science (AS)   [ ] Liberal Arts (LA)   [ ] Workforce Development (WD)

[ ] Health Care (HC)   [ ] Lifetime Learning (LL)   [ ] Nursing   [ ] Developmental

Credit Hour(s):   Three (3)

Effective Date: Spring 2017

Assessment Goal Per Outcome: 70%

COURSE DESCRIPTION

This course is designed to provide a foundation of theory for many of the concepts found in the current elementary and middle school mathematics classroom. This course will examine topics related to the Real Number system, such as set theory, relations and functions, probability theory, and statistics, all from a problem solving approach. The use of technology (e.g. graphing calculator, word processing, the Internet, Sympodium, etc.) as tools for problem solving and course communication will be an integral part of the course. REMEMBER: A GRADE OF 'C' IN THIS COURSE IS A PREREQUISITE FOR MATHEMATICS FOR EDUCATION II at Pittsburg State University.

MINIMUM REQUIREMENTS/PREREQUISITES AND/OR COREQUISITES

For specific placement requirements for this class, please refer to the Mandatory Placement Policy for MATH 113 in the College Catalog.

TEXTS

The official list of textbooks and materials for this course is found on *my*Neosho.

http://www.neosho.edu/ProspectiveStudents/Registration/CourseSyllabi.aspx

GENERAL EDUCATION OUTCOMES

1.   Practice Responsible Citizenship through:

- identifying rights and responsibilities of citizenship,
- identifying how human values and perceptions affect and are affected by social diversity,
- identifying and interpreting artistic expression.
2. Live a healthy lifestyle (physical, intellectual, social) through:
   - listing factors associated with a healthy lifestyle and lifetime fitness,
   - identifying the importance of lifetime learning,
   - demonstrating self-discipline, respect for others, and the ability to work collaboratively as a team.
3. Communicate effectively through:
   - developing effective written communication skills,
   - developing effective oral communication and listening skills.
4. Think analytically through:
   - utilizing quantitative information in problem solving,
   - utilizing the principles of systematic inquiry,
   - utilizing various information resources including technology for research and data collection.

COURSE OUTCOMES/COMPETENCIES (as Required)

The student will strive to achieve, and be able to demonstrate an understanding of the following competencies/outcomes:

1. Identify and apply the basic steps of problem-solving;
   a. Identify and create sequences (e.g. arithmetic, geometric, figurate, Fibonacci, etc.);
   b. Utilize sequences and series in problem-solving situations;
   c. Understand and be able to apply basic set theory including operations and Venn Diagrams to solve problems;
2. Apply basic probability counting strategies including multi-step experiments and odds;
   a. Recognize and apply counting strategies (e.g. permutations and combinations) associated with probability simulations;
3. Understand the basic principles of descriptive statistics;
   a. Identify the uses and abuses of statistics in everyday life;
   b. Draw graphs such as box and whisker, histogram, circle graph, stem and leaf plots, and scatter plots to represent a set of data;
4. Apply the tools and techniques of measurement for the organization and analysis of data;
   a. Define and recognize relations and functions including common tests for functions (e.g. arrow, table, ordered pair and vertical line test);
   b. Interpret functions in both tabular and equation form;
5. Demonstrate mastery of fundamental arithmetic concepts;
   a. Arithmetic computations involving fractions decimals and percents;
   b. Basic geometry in the plane;
   c. Measurement and calculations.

MINIMUM COURSE CONTENT

The following topics must be included in this course. Additional topics may also be included.

1. Thinking Critically
    a.   Introduction to Problem Solving.
    b.   Pólya's Problem-Solving Principles.
    c.   Problem-Solving Strategies.
    d.   Additional Problem-Solving Strategies.
    e.   Reasoning Mathematically.
2. Sets and Whole Numbers
    a.   Sets and Operations on Sets.
    b.   Sets, Counting, and the Whole Numbers.
    c.   Addition and Subtraction of Whole Numbers.
    d.   Multiplication and Division of Whole Numbers.
3. Numeration and Computation
    a.   Numeration Systems Past and Present.
    b.   Nondecimal Positional Systems.
    c.   Algorithms for Adding and Subtracting Whole Numbers.
    d.   Algorithms for Multiplication and Division of Whole Numbers.
    e.   Mental Arithmetic and Estimation.
    f.   Getting the Most Out of Your Calculator.
4. Algebraic Reasoning and Representation
    a.   Algebraic Expressions and Equations.
    b.   Functions.
    c.   Graphing Functions in the Cartesian Plane.

5. Statistics: The Interpretation of Data
    a.   The Graphical Representation of Data.
    b.   Measures of Central Tendency and Variability.
    c.   Statistical Inference.
6. Probability
    a.   Empirical Probability.
    b.   Principles of Counting.
    c.   Theoretical Probability.

STUDENT REQUIREMENTS AND METHOD OF EVALUATION

<u>INSTRUCTIONAL METHODS</u>

The text will serve as a guideline for the course with most of the material taken from the text and delivered in an informal lecture/discussion presentation. A TI-83 or other model of a graphing calculator, an overhead projector, chalkboard, videos or other forms of technology may be used for demonstrations. Problem assignments will be made for each section that is covered and the student should be ready to discuss the problems in the next class session. Normally the first part of a class will be used to discuss the previous assignments. The student is encouraged to visit the instructor for individual help outside of class; seek help immediately when you don't understand some concept.

<u>STUDENT REQUIREMENTS</u>
See the syllabus supplement for a specific course section for details of student requirements and method of evaluation.

Any late arrivals to class and/or early departures from class before the conclusion of the session may count toward the total minutes.

<u>GRADE SCALE</u>

The grading scale will be 90-80-70-60 percent of the total possible points for an A, B, C, D, or F letter grade.

ASSESSMENT OF STUDENT GAIN

The purpose of assessing student learning at Neosho County Community College is to ensure the educational purposes of the institution are met and appropriate changes are made in program development and classroom instruction to allow for student success. The instructor(s) of this course will determine the methods of assessment most appropriate and complete an assessment report at the end of the course.

Attendance Policy

1. NCCC values interactive learning which promotes student engagement in the learning process. To be actively engaged, the student must be present in the learning environment.

2. Unless students are participating in a school activity or are excused by the instructor, they are expected to attend class. If a student's absences exceed one-eighth of the total course duration, (which equates to one hundred (100) minutes per credit hour in a face-to-face class) the instructor has the right, but is not required, to withdraw a student from the course. Once the student has been dropped for excessive absences, the registrar's office will send a letter to the student, stating that he or she has been dropped. A student may petition the chief academic officer for reinstatement by submitting a letter stating valid reasons for the absences within one week of the registrar's notification. If the student is reinstated into the class, the instructor and the registrar will be notified.   Please refer to the Student Handbook/Academic Policies for more information

3. Absences that occur due to students participating in official college activities are excused except in those cases where outside bodies, such as the State Board of Nursing, have requirements for minimum class minutes for each student. Students who are excused will be given reasonable opportunity to make up any missed work or receive substitute assignments from the instructor and should not be penalized for the absence. Proper procedure should be followed in notifying faculty in advance of the student's planned participation in the event. Ultimately it is the student's responsibility to notify the instructor in advance of the planned absence.

ACADEMIC INTEGRITY

NCCC expects every student to demonstrate ethical behavior with regard to academic pursuits. Academic integrity in coursework is a specific requirement. Definitions, examples, and possible consequences for violations of Academic Integrity, as well as the appeals process, can be found in the College Catalog, Student Handbook, and/or Code of Student Conduct and Discipline.

ELECTRONIC DEVICE POLICY

Student cell phones and other personal electronic devices not being used for class activities must not be accessed during class times unless the instructor chooses to waive this policy.

NOTE

Information and statements in this document are subject to change at the discretion of NCCC. Students will be notified of changes and where to find the most current approved documents.

ACCOMMODATIONS

If you are a student with a disability who may need accommodation(s), in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, please notify the Dean of Student Services in the Student Services Office, Sanders Hall, 620-432-0304, on the Chanute Campus, or the Dean for the Ottawa and Online Campuses, 785-248-2798, on the Ottawa Campus as soon as possible. You will need to bring your documentation for review in order to determine reasonable accommodations, and then we can assist you in arranging any necessary accommodations.

NON-DISCRIMINATION POLICY

The following link provides information related to the non-discrimination policy of NCCC, including persons with disabilities. Students are urged to review this policy.

http://www.neosho.edu/Departments/NonDiscrimination.aspx

SEXUAL MISCONDUCT POLICY (TITLE IX)

At NCCC, it is the responsibility of an instructor to help create a safe learning environment in the classroom, including both physical and virtual classrooms. All instructors are considered mandatory reporters at NCCC, therefore any information regarding sexual misconduct that is shared by a student in one-on-one meetings with the instructor must be reported to appropriate personnel at the College. Instructors will keep the information private to the greatest extent possible, but it is not confidential.

Generally, climate surveys, classroom writing assignments or discussions, human subjects research, or events such as Take Back the Night events do not provide notice that must be reported to the Coordinator by employees, unless the reporting party clearly indicates that they wish a report to be made.

The following link provides information related to the sexual misconduct policy of NCCC, including resources, reporting options, and student rights. Students are urged to review this policy.

http://www.neosho.edu/TitleIX.aspx

COURSE NOTES

<u>CLASSROOM ENVIRONMENT</u>

Students are encouraged to participate freely in classroom discussions, including offering personal insights and asking questions relevant to the subject at hand. However, intentionally non-relevant comments and questions, and personal conversations are disruptive and are not appropriate in coursework while class is in session. These behaviors interfere with the learning process and therefore will not be tolerated. You are expected to conduct yourselves at all times as mature adults actively engaged in the pursuit of higher learning.