**Pittsburg State University**

MATH 204 - Mathematics for Education I

# Semester, Year and Instructor Name

# Office Hours

# Course Syllabus

Course delivery method: Lecture, discussion, and problem-solving

**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. MyMathLab, SMARTBOARD, Internet, calculator, and word processing) 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.**

# Instructional

**Resources**:

* MyMathLab **(required)**
* Mathematical Reasoning for Elementary Teachers by Calvin Long , Duane DeTemple and Richard Millman (optional)
* Manipulatives, calculators, and the Internet.
* A **tutorial room** (223 Yates Hall) is available for your use free of charge. Tutors and their schedules are posted on the door.

**Course Goals**

**and Objectives**: Upon completion of this course, the student should be able to:

* Identify the basic steps, and be able to apply them, of problem-solving;
* Identify and create sequences (e.g. arithmetic, geometric, figurate, Fibonacci, etc.);
* Utilize sequences and series in problem-solving situations;
* Understand and be able to apply basic set theory including operations and Venn Diagrams
* to solve problems;
* Apply basic probability counting strategies including multi-step experiments and odds;
* Recognize and apply counting strategies (e.g. permutations and combinations) associated

with probability simulations;

* Understand the basic principles of descriptive statistics;
* Identify the uses and abuses of statistics in everyday life;
* Draw graphs such as box and whisker, histogram, circle graph, stem and leaf plots, and scatter plots

to represent a set of data;

* Apply the tools and techniques of measurement for the organization and analysis of data;
* Define and recognize relations and functions including common tests for functions (e.g.
* arrow, table, ordered pair and vertical line test);
* Interpret functions in both tabular and equation form.

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**Pathways:** **Quantitative/Analytic Methods**  Quantitative literacy and its methods refer to competency in working with numerical data. Students with strong quantitative skills possess the ability to reason and solve problems from a wide array of contexts and everyday life situations. They can create sophisticated arguments supported by objective evidence and can communicate those arguments in a variety of formats (e.g. text, tables, graphs, mathematical equations, etc.) as appropriate. Competency in this element means:

* Applying a set of formal tools to interpret, represent, calculate, and analyze quantitative data;
* Explaining assumptions and rationale for selecting a mathematical approach to solve a problem;
* Explaining assumptions and rationale for selecting a mathematical or formal logical approach to solve a problem;
* Drawing and communicating conclusions to support decisions

**Assessment** As a Benchmark PSP course, the student is expected to:

* Recognize tools of analysis and communicate results

# Method of

**Evaluation**:

**Tests**: There will be 4 unit tests plus a comprehensive final exam. These tests will be based on the text, in-class notes, homework, and in-class projects. Your unit tests will be worth **45%** of your final grade. The comprehensive final exam will count **25%** of your final grade and will include questions to assess your ability to recognize the tools of analysis and communicate results. There will be a test during dead week. **Tests taken after test dates will be the makeup tests subject to point deductions.**

**Homework/Quizzes and Group Work**:

**Homework:** Homework will be given each class session usually both on MyMathLab and from the textbook. Written book homework should be kept in your notebook and prepared neatly and logically including your name, and the assignment reference information (chapter, section, and problem number). In MyMathLab the "DO HOMEOWORK" button will take you to the actual homework problems which may be worked and reworked to improve your score. Homework not done by the due date will be scored as a zero. Homework on MyMathLab will be weighted to count for **15%** of your final grade.

**Quizzes:** Two of these quiz scores will come from 2 problems from the textbook that **you present on the chalkboard**. Problems eligible for board presentations should be selected from those book homework problems requiring more than a simple answer (i.e. work must be demonstrated and explained); they will be “first-come, first served.” They should be displayed prior to the start of class with your name and the page number/chapter/section displayed, and you should be prepared to explain it to the class. The problem should coordinate with the in-class discussion (you shouldn’t go back and select one from previous chapters to present). A problem becomes ineligible for presentation if we have discussed it in class or the homework for that section has already been due. Group projects and pop quizzes will be in-class and **cannot** be made up. Pop quizzes/in class projects and writing assignments will count for **15%** of your final grade.

**Notebook**: You are encouraged to maintain a notebook organized by the following sections:

Syllabus, Notes and Handouts, Pop Quizzes, Tests, Written Book Homework, and

Writing Assignments

**Final Grade**: Your final grade will be based on the percentages outlined above for hourly exams, quizzes/in-class projects, homework, and the final exam.

**Grading Scale**:

A 90 – 100% C 70 – 79% F 0 – 59%

B 80 – 89% D 60 – 69%

\* Academic honesty and integrity policy can be found at <http://www.pittstate.edu/audiences/current-students/policies/rights-and-responsibilities/academic-misconduct.dot>

\* The Syllabi Supplement, a “one-stop” place for students to access up-to-date information about campus resources can be found a <http://www.pittstate.edu/dotAsset/6c552e9b-8c3c-415e-b874-15006b8d85d0.pdf>