

# Problem Solving for Elementary and Middle Grades Teachers Math 411/411G Fall 2016

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<b>Course Hours:</b>	At your leisure – but be careful!
Office Hours:	For those of you who are on the main campus, I have set some <i>tentative</i> office hours on
	Tuesday 11:10 am – 12:10 pm & Wednesday 9 – 10 am. Of course I am often in my
	office many days outside these times so capture or appointment works as well. In
	addition. I am available via Discussion Board and Email on a regular basis!

#### **Materials:**

Johnson, K., Herr, T., & Kysh, J. (2012). *Crossing the River with Dogs: Problem Solving for College Students*. (2<sup>nd</sup> Edition). Emeryville, CA: Key College Publishing.

In addition, you **must** have regular access to the Internet to access email and the course website – this will help ensure that you do not fall behind. Check your email regularly and save class emails for future reference.

#### **Course Description:**

Integrates concepts developed in algebra, geometry, logic, statistics, probability, and elementary number theory. Students are encouraged to use problem-solving strategies, models, and technologies to solve problems as well as create problems of their own. \*\*\*Please note\*\*\* If you took Math 411 (or its equivalent at another university) as an undergraduate, you cannot repeat the course for graduate credit. It is your responsibility to find out if you can count this course towards your degree.

#### **Prerequisites:**

MATH 205, MATH 206 and MATH 308 with a grade of C or better, or MATH 211, MATH 212, and MATH 308 with a grade of C or better, or permission of instructor

#### Attendance:

We will not have a set meeting time when everyone will be online; however, you are expected to be online **frequently** each week to check your WKU email and the discussion board – this is <u>VITAL</u>. In a face-to-face class, we would meet in person just shy of 3 hours each week. In addition to this, you are expected to put in additional time outside of class for reading, completing assignments, and studying – this is typically figured as 1-3 hours per credit hour per week. So in a face-to-face class the spent on a class can range from 6 to 12 hours a week for each class. I will expect you to do the same amount work as if this course was meeting in person – I will not compromise the integrity of the course. Since we are not meeting in person, some students will find that they need to put in additional time to understand the material. Make sure you do not get behind!

Classes Begin
Last day to drop the course without a grade.
Labor Day
Fall Break
Last day to drop the course with a W or change to an audit
Thanksgiving Holiday
November 28 – December 1 (Monday – Thursday)

#### Assessment / Evaluation:

The course grade will be computed as follows:

- **Participation/Professionalism (15%):** Even though this is an online course that utilizes an asynchronous environment, your participation is **expected** and **required**. All homework questions should be posted on the discussion board (DB) located on Blackboard so that the entire class can benefit from the question and discussion relating to the solution and answer(s). You are expected to post comments and/or questions that relate to classmates' questions just as you would participate in conversations during group work in a classroom. Of course this "conversation" is not immediate so it is in your best interest not to wait until the last minute to work on your assignments. In addition, I may occasionally post a DB prompt and expect you to participate fully in that discussion, I may also assign problems for you to work and share on the DB, or I may assign a specific group for you to work with on the DB. Regardless, you should plan to spend time on the computer monitoring these discussions several times throughout the week. Questions of a personal nature should be communicated privately. **You will receive a participation grade for every discussion board prompt and for every assignment**!!! Details regarding the expectations as they relate to posting on the DB and the grading of these posts is available in a document that is located on Blackboard.
- Assignments (35%): It will be very advantageous for you to read every chapter that we cover in this course. Problems will be assigned on a weekly basis and should be taken seriously. You will find that doing the homework and corresponding with classmates or with the instructor will increase your chances for success on exams. Also keep in mind that this is a problem solving class do not expect to sit down and get one assignment done in an hour or two sometimes you get stuck and need to take a break. DO NOT wait until the last minute to start an assignment instead, budget your time and work when you can.

All assignments should be turned in via the links given or dropped off at my office (for students on the main campus). Any assignment uploaded on Blackboard for me to grade should be either a **Word document or a PDF file**. It is fine to handwrite your assignments to then scan as a PDF file. However, all uploaded assignments should be turned in as **one file** - do not type your assignments into text boxes. To summarize – any assignment uploaded to Blackboard **MUST** be uploaded as **ONE** document or **ONE** pdf file – **no other file type is acceptable**. Once an assignment has been graded and solutions posted, late assignments will not be accepted for any reason! A grading rubric is posted on Blackboard. In addition, details on how assignments will be structured, including weekly due dates, is posted on Blackboard. Any assignments submitted incorrectly (i.e., more than ONE document), will be NOT be graded!

**For help on how to upload assignments**, go to Blackboard help for students. Under Spotlight, click 'Submit your assignments.' Watch tutorial and/or read instructions provided.

• Exams (50%): There will be 2 tests throughout the semester that will be announced in advance. Tests will be handwritten and taken at a testing center near where you live/work. There will be a "window of opportunity" to take each test. These "windows of opportunity" will be short, so it will be very important for to you to schedule your test as soon as you they are announced. Each student will schedule their testing time with the appropriate testing center and then take the test at the scheduled time and place. You will receive one email from the DL Testing Center that will instruct you on how to register for your tests – please do not delete this email, as they only send it out once. The only exceptions will be for students that have written permission from the Student Accessibility Resource Center. There will be no planned make-up tests and missing a test will result in a zero. Only under the most extenuating circumstances will a make-up test be considered if the instructor is aware of an issue in advance.

**Grading Scale:** 92 – 100% A 84 – 91% B 76 – 83% C 68 – 75% D Below 68% F

## Learning Outcomes:

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

- Employ both inductive and deductive reasoning appropriately.
- Choose appropriate strategies to solve problems and recognize when multiple strategies will work to reach a solution.
- Recognize and find multiple solutions when appropriate.
- Construct visual representations as needed and then analyze those constructs to reach a solution.
- Identify patterns and predict other outcomes using the patterns they identified.
- Employ logic in solving a problem to arrive at a conclusion.
- Analyze and evaluate the mathematical thinking and strategies of others.
- Communicate their mathematical thinking orally and in writing to peers, faculty, and others.

### Graduate Credit:

As indicated in the WKU Graduate Catalog (<u>http://www.wku.edu/graduate/prospective\_students/catalog.php</u>), any student enrolled in a 400-level course for graduate credit is expected to complete additional course requirements. This additional work assigned to graduate students is expected to bring the course to a level of rigor commensurate with a graduate level course. Therefore, any student taking this course for graduate credit will be required to complete additional assignments. Each of these additional assignments <u>must be satisfactorily completed</u> before a grade will be awarded in the class; however, they will not be part of the course grade. The details of these assignments will be posted on Blackboard. If you fail to satisfactorily complete one or two of these assignments, your final grade will be no higher than a D and failing to satisfactorily complete more than two of these assignments will result in an F in the course.

Academic dishonesty will not be tolerated! You are expected to follow The University Code of Conduct at all times. Specifically any form of cheating or plagiarism will be punished. The policy is found in the student handbook at <u>http://www.wku.edu/judicialaffairs/process-for-academic-dishonesty.php</u>.

**Please Note:** "In compliance with university policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact Student Accessibility Resource Center in Downing Student Union, 1074. The phone number is 270-745-5004. Please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the Student Accessibility Resource Center."