

MAT 1050-LE01

Elements of Mathematics

Fall 2009, 4 credit hours

Prince George's Community College

Department of Mathematics

Days: Tuesdays and Thursdays

Section Synonym Number: 11753

Time: 5:00 p.m. – 7:15 p.m.

Instructor: Andy D. Jones

Classroom: Marlboro Hall 3032

Course Description: Designed for students preparing to teach at the preschool and elementary level. Overview of mathematical systems, including sets, natural numbers, integers, rational numbers, and irrational numbers, algorithms, and computational methods.

Important Note: Although this course satisfies the General Education requirement for graduation at Prince George's Community College and transfers to UMCP as MATH 210, it is primarily for those who will teach in the preschool or elementary school. It is not meant to teach the **how** of the topics typically taught in preschool and elementary school; its purpose is to teach the **why** of those topics. This class meets five hours per week and includes lab time.

Prerequisite: Math placement score or C or better in MAT 1040 *Intermediate Algebra*. Students are responsible for meeting the prerequisites of this course and will accept all consequences for staying in the course without having met the prerequisites.

Instructor Contact Information:

Name: Andy D. Jones, Professor of Mathematics

Office: Marlboro Hall 3034

Mailing Address: Department of Mathematics
Prince George's Community College
301 Largo Road
Largo, Maryland 20774

E-mail Address: JonesAD@pgcc.edu - To facilitate email communication with me, include the code **CCGP07** in the subject line or first line of emails to me during the Spring 2007 semester. (The code allows legitimate email messages but stops SPAM from entering the PGCC network.)

Personal Webpage: <http://academic.pgcc.edu/~ajones>

Office Phone: (301) 322-0448. Please leave a message on my voicemail, and I will return your call as soon as possible. Speak clearly and slowly when you leave your message. Remember to state your name and phone number, preferably twice.

Office Hours: Monday and Wednesday: 12:00 – 1:00 p.m.
Tuesday and Thursday: 12:00 – 12:30 p.m. and 4:00 – 5:00 p.m.
Math Learning Center Hour: To be announced

Textbook: Sowder, Judith, Sowder, L. and Nickerson, S. *Reconceptualizing Mathematics (Parts 1, 2, and 3.)* Preliminary edition. New York: W. H. Freeman, 2008. **(required at every class meeting)**

- Part 3 is not used in this course but will be used in MAT 1060 *Elements of Geometry & Logic*, Spring 2010.
- Textbook only ISBN 978-1-4292-2427-7

Required Materials:

- Your own calculator - **required at every class**
- A three-ring binder to collect all course materials and loose-leaf paper for homework
- Pencils: All graded work including exams must be submitted in pencil.
- a Posterboard for your project

Optional Materials:

- School supplies such as a ruler, pens, colored pencils, markers, scissors, tape, sticky notes, graph paper

Blackboard, myPGCC and Owl Mail: All students should obtain a *Blackboard* log-in as soon as possible. Besides being able to check your grades, you will also find assignments, quizzes, handouts, resources, announcements, and course documents there. Use **myPGCC** to get quick access to Blackboard, Owl Alert, Owl Link, Owl Mail, PGCC news, information, student events and more. Access **myPGCC** at my.pgcc.edu or from www.pgcc.edu. Log in using your Owl Link user ID and password. **Effective Fall 2009, all e-mail will be sent only to your Owl Mail account.**

Organization: One important skill for a teacher is learning how to organize your own learning and progress for others to evaluate as you may do in a professional teaching portfolio. While this collection is not a portfolio in the strictest sense, you should collect all work from this course in an organized way. Include all homework assignments, returned exams, activities, quizzes, etc. This binder should be the file cabinet of your work in MAT 1050. You may want to keep this binder for subsequent coursework, as a resource for your own classroom teaching, or for inclusion as part of your A.A.T. portfolio.

Course Format: Although addressing the mathematics you will teach as elementary and middle school teachers, this course is not a course of pedagogy (how to teach). However, best practices of teaching mathematics will be used in the course so that you may learn mathematics in a way that will help you to teach it better. The course will include a significant portion of laboratory and activity-based learning in groups. Students are expected to participate in all in-class activities within a collaborative environment. Some part of your grade will be based on group activities. **If you are not comfortable working in groups and helping your fellow group members learn, my class may not be for you.** The course will be designed to include lecture format, small group work, explorations, writing, manipulative use, and applications of technology. In addition, because you as a teacher must have a greater understanding of the material than the students you are teaching, the problems and activities we use will not always be geared at the elementary level. You are expected to read and work through the textbook materials according to the tentative schedule as part of your out-of-class preparation. In-class lectures and activities will assume your familiarity and will extend these basic concepts further.

Expected Course Outcomes (as taken from the Master Course Syllabus, January 2009)

Upon successful completion of this course, students will...

1. Use appropriate strategies to solve problems.
2. Demonstrate computational skills in the real number system with and without a calculator.
3. Demonstrate understanding of mathematical ideas and operations with pictures, manipulatives, and concrete models.
4. Discuss various historical numeration systems with respect to such characteristics as place value, zero, and base for decimal and non-decimal systems.
5. Use a selection of standard and non-standard arithmetic algorithms, including estimation and mental computation, and be able to apply them to whole numbers, decimal and non-decimal number systems.
6. Identify and apply the associative, commutative and distributive properties and the properties of closure, identity and inverse for whole, rational and real numbers.
7. Demonstrate knowledge and procedures of number theory.
8. Use representations and the language of mathematics to express mathematical functions verbally, graphically, and symbolically.
9. Illustrate the relationship between the sets of natural, whole, integer, rational, irrational and real numbers.
10. Use relationships between numbers to solve problems using ratio, proportions, and percents.
11. Communicate effectively about mathematics.
12. Use technology appropriately to enhance the learning of mathematics.

Grades and Assessment

Your course grade will be determined according to a weighted average. Your weighted average is computed as
 (5% x percentage of Praxis Simulation points obtained) + (5% x percentage of Project points obtained)
 + (10% x percentage of Activity Points obtained) + (10% x percentage of Quiz points obtained)
 + (50% x percentage of Exam points obtained) + (20% x percentage of Final Exam points obtained)

Praxis Simulation: 5%	Many students are unsuccessful with the Praxis exam because they do not prepare themselves well enough for it. This project will familiarize you with the type of questions the Praxis will ask as well as with the level of content it will cover. This will help you be more aware of the importance of MAT 1050 on your Praxis success. This project will require taking a pre-test and post-test as well as writing a reflection paper on your progress. Details and specifics will be given in a separate document.
Project: 5%	As a professional educator, you need to be aware of the work of your peers in the larger scholarly community and of connections across the curriculum. Therefore, you will develop an annotated bibliography of readings related to the mathematical concepts addressed in this course from professional journals or in children's literature. As the culminating part of this project, you will design a poster around some concept in your list of readings to be displayed to the class. Details and specifics will be given in a separate document.
Activity Points: 10%	Throughout the semester (usually at every class meeting) there will be points assigned to class activities and short laboratory tasks. These points may be from group work, specially assigned homework, internet activities, presentations, simulations, or other items. Each assignment will be scored out of 10 points. Your completion of these tasks will be converted to a percent at the end of the semester. These may not be made up for any reason.
Quizzes: 10%	Throughout the course, I will give short quizzes usually at the beginning of class. These quizzes may be announced or unannounced and will cover the material in class, in the reading, or in homework. There will be approximately 12 quizzes throughout the semester but only the top 10 quizzes, no matter how many are given, will be counted in the grade. These cannot be made up for any reason. Students who are absent or late forfeit their quiz grade.
Exams: 50%	There will be three major exams in addition to the final exam. <u>One or more of these exams may be administered outside of class time in the Testing Center.</u> These major exams will assess your knowledge of a limited number of topics covered in class. <ul style="list-style-type: none"> • Exam #1: Quantity, Numeration, and Whole Number Operations • Exam #2: Algorithms, Estimation and Fraction Concepts and Operations • Exam #3: Ratio, Proportion, and Percents; Integers, and Number Theory
Final Exam: 20%	The final exam will be comprehensive and will measure the expected learning outcomes for the whole course. The final exam will be given in class during the Final Exam period scheduled by the College under my supervision. It cannot be taken early so plan accordingly. <ul style="list-style-type: none"> • Final Exam: Patterns and Comprehensive

Grade Assignment: Your semester grade will be assigned based on these weighted averages:

A	B	C	D	F
90% and above	80% to 89%	70% - 79%	60% - 69%	59% and below
<i>Superior work far above peers; sets the standard in understanding, insight, or skill.</i>	<i>High quality, solid work; clearly reflects a high level of understanding, insight, or skill.</i>	<i>Competent, adequate work and readiness to continue further mathematical study.</i>	<i>Low quality work showing minimal understanding; indicates un readiness to continue in the sequence.</i>	<i>Representative of work clearly inadequate and unworthy of credit.</i>

The instructor reserves the right to make corrections to incorrect grades and discrepancies in grade calculations displayed in Blackboard's gradebook. Course grades will be assigned based on the procedure above. The instructor's gradebook is the official gradebook.

Important Dates: Log in to **myPGCC** from my.pgcc.edu or from www.pgcc.edu for updates and announcements.

Fall 2009 Semester	
Classes begin	Monday, August 31
No face-to-face classes – College closed – Labor Day	Saturday-Monday, September 5-7
Last day to apply for fall graduation	Tuesday, September 15
Last day to change from “credit to audit” or “audit to credit”	Friday, September 25
No face-to-face classes – College Enrichment Day	Tuesday, October 27
Last day to withdraw from full semester classes	Friday, November 20
No classes – Start of Thanksgiving Break	Wednesday, November 25
No classes – College closed – Thanksgiving Break	Thursday-Sunday, November 26-29
Final exam period/last week of fall 2009 classes	Friday-Thursday, December 11-17
College Closed – Winter Break	Saturday-Sunday, December 19-January 3
Interession and Spring 2010 Semester	
Begin registration for Interession 2010	Monday, October 26
Advance registration for spring 2010	Monday-Wednesday, November 30-December 2
Begin open registration spring 2010	Thursday, December 3
Registration for Interession ends. Spring in-person registration closes. Registration resumes Monday, January 4.	Friday, December 18
Spring 2010 classes begin	Monday, January 25

Policies

Cancellation/Delayed Opening of Classes: When the college announces a delayed opening, all classes with at least 45 minutes of class time remaining at the time of the opening will be held. For example, in the event of a 10 a.m. opening, a 9:30-10:45 a.m. class will be held. This procedure applies to all credit classes. To sign up for text alerts such as school closings and delays, log in to **myPGCC** from my.pgcc.edu or from www.pgcc.edu and click Owl Alert Notification System on the Bookmarks tab. Owl Alert is the college’s instant messaging and email notification system.

Attendance Policy: Because this class requires active participation in class discussion, “hands-on” experiences, and cooperative group learning, **on-time attendance is essential and mandatory!** Absenteeism and tardiness will affect your overall grade directly and indirectly. As stated in the PGCC Catalog, *the college in general expects that students will regularly attend the classes for which they are registered.* Attendance will be taken at every class. Do not miss this class unless absolutely necessary. Although I certainly encourage you to visit me during office hours, it is impossible to recreate the discussions, explorations, and laboratory activities missed during an absence. If you do miss a class, you are responsible for all material covered in your absence and you must complete all required assignments, quizzes, and exams on time. It is your responsibility to find out what was missed and what is due the next class period via *Blackboard*. Please note that any in-class activity points you miss during an absence cannot be made up (see Make-up Policy below.) With the exception of extenuating circumstances, students who miss more four classes during the semester may receive a failing grade. **Students who are habitually tardy may be denied entry into the classroom until a break in classroom discussions occurs.**

Make-up Policy: **It is my general policy that no make-up exams or quizzes will be given.** Exceptions to this policy are extremely rare. Students who cannot take exams on time due to an extenuating circumstance **must contact me before the exam window lapses and provide a written request with documentation of circumstance.** The documentation must indicate why it was impossible to take the exam during the entire assigned testing window. In-class quizzes, activities, and collected homework cannot be made up for **any** reason. If permission is given for a make-up, the make-up exam will be administered during the final week of class. Late projects will receive reduced credit.

Extra Credit Policy: Grades must reflect what you have learned and how well you meet the objectives for this course as measured on the course assessments. Your grade must reflect your readiness to proceed to the next course in the sequence. Therefore, **no extra credit work will be available.**

Disability Support Services: Students requesting academic accommodations are required to contact the Disability Support Services Office (B-124) or call (301) 322-0838 (voice) or (301) 322-0122 (TTY) to establish eligibility for services and accommodations. Students with documented disabilities should discuss the matter privately with their instructors at the beginning of the semester and provide a copy of their Student/Faculty Accommodation Form. Accommodations cannot be provided until this form is provided to me.

Code of Conduct: The Prince George's Community College Code of Conduct defines the rights and responsibilities of students and establishes a system of procedures for dealing with students charged with violations of the code and other rules and regulations of the college. A student enrolling in the college assumes an obligation to conduct himself/herself in a manner compatible with the college's function as an educational institution. Refer to the 2009-2010 Student Handbook, beginning on page 37, for a complete explanation of the Code of Conduct, including the Code of Academic Integrity and the procedure for dealing with disruptive student behavior.

Classroom Conduct: Every student is expected to behave in a way which promotes a learning atmosphere. Respect for others, both students and instructor, is crucial to the success of all, and anything less will not be tolerated. Students are expected to add positively to the learning environment and show respect to the instructor and fellow students.

- **Be in class on time. I do not tolerate tardiness.** It shows a lack of interest on your part and a lack of respect for the instructor and other classmates. Plan accordingly for traffic, parking, and other activities. Tardiness is defined as arriving after attendance has been taken. Students who are substantially and/or habitually late may be denied access to the classroom.
- **If you need to leave early,** notify the instructor before class and sit close to the door.
- **Actively participate** in all class lectures, activities, and discussions, asking questions when things are unclear. Your participation is valued.
- **Prepare for class** by having your homework and questions ready. Always bring your book, calculator, paper, and pencil. Read the sections in advance. For this class, expect to spend at least 2 hours outside of class for every one hour spent in class for study/reading/homework time (at least 10 hours of outside time per week).
- **Cell phones should be turned off completely.** Do not use text-messaging in my class. You will be asked to leave if this occurs. Students who have cell phones out during tests and quizzes may be suspected of cheating.
- **Visitors who are not registered for the course may not sit in the class. This includes children.** School liability prevents those who are not officially registered, including students' children, from being in the classroom.

Code of Academic Integrity: The college is an institution of higher learning that holds academic integrity as its highest principle. In the pursuit of knowledge, the college community expects that all students, faculty, and staff will share responsibility for adhering to the values of honesty and unquestionable integrity. To support a community committed to academic achievement and scholarship, the Code of Academic Integrity advances the principle of honest representation in the work that is produced by students seeking to engage fully in the learning process. The complete text of the Code of Academic Integrity is in the 2009-2010 Student Handbook (pages 39-41) and posted on the college's website. All charges of academic dishonesty will be taken seriously. This includes cheating or copying on exams and quizzes, submitting another's out-of-class work as your own, and plagiarizing from sources such as books, magazines, and the internet. Students who engage in academic dishonesty will receive a failing grade of zero for that particular assignment. Any repeated incident will result in an automatic course grade of "F." **I take academic dishonesty seriously!**

Computer and Learning Labs

<u>Office</u>	<u>Location</u>	<u>Phone</u>	<u>Hours of Operation</u>
Math Learning Center	Marlboro Hall Room 3104	301-583-5257	Mon.-Thurs.: 9 am – 8 pm Fri.: 9 am – 5 pm Sat.: 9 am – 2 pm Sun.: Closed
Open Computer Lab Bladen Computer Center	Bladen Hall Room 104	301-322-0999	Mon.-Thurs.: 8 am – 10:15 pm Fri.: 8 am – 5 pm Sat.: 9 am – 4:45 pm Sun.: Closed
Open Computer Lab Center for Advanced Technology	Center for Advanced Technology Rooms 101 and 201	301-322-0999	Mon.-Fri.: 8 am – 10:15 pm Sat.: 9 am – 5 pm (first floor only) Sun.: Closed

Other Resources, Services, and Academic Support

<u>Office</u>	<u>Location</u>	<u>Phone</u>	<u>Hours of Operation</u>
Academic Advising	Bladen Hall Room 124	301-322-0151	Mon.-Thurs.: 8:30 am – 8 pm Fri: 8:30 am – 5 pm Sat.: Closed Sun: Closed
Academic Advising Website: http://www.pgcc.edu/current/academicResources/academicAdvising.aspx			
Bookstore	Largo Student Center Room 116	301-322-0912	Hours vary at beginning and end of the semester. Please call or check website to confirm.
Bookstore Website: http://www-old.pgcc.edu/pgweb/pgdocs/bookstore.html			
Campus Police	Facilities Management Building	301-322-0666	24 hours, 7 days a week
College Life Services	Largo Student Center Room 149	301-322-0853	Mon.-Fri.: 8:30 am – 5 pm
eLearning Services (formerly Distance Learning)	Accokeek Hall Building Room 335	301-322-0463	Mon.-Fri.: 8:30 am – 4:30 pm with phone support available until 9 pm
eLearning Website: http://www.pgconline.com			
Library	Accokeek Hall First and Second Floors	301-322-0476	Mon-Thurs.: 8 am – 8 pm Fri.: 8 am – 5 pm Sat.: 10 am – 3 pm Sun.: Closed
Library Website: http://www.pgcc.edu/current/academicresources/library.aspx			
Testing Center	Bladen Hall Room 100	301-322-0090	Mon-Thurs.: 8:30 am – 8:30 pm Fri.*: 8:30 am – 4:30 pm Sat.: 9 am – 3:30 pm Sun: Closed
Testing Center Website: http://academic.pgcc.edu/sas/index.html			
			No additional students will be admitted for testing 30 minutes prior to the posted closing time.
			*On the first Friday of each month, the Center closes at 2:30 pm with no admittance after 2 pm.
Tutoring and Writing Centers	Bladen Hall Room 107	301-322-0748	Mon-Thurs.: 8:30 am – 8:30 pm Fri.: 8:30 am – 4:30 pm Sat.: 9 am – 3:30 pm
Tutoring and Writing Centers Website: http://www.pgcc.edu/current/academicresources/tutoringwriting.aspx			

Student Development Services: Student Development Services offers programs that provide students with academic and career advising, personal counseling, and mentoring. For more information, log in to **myPGCC** from my.pgcc.edu or from www.pgcc.edu, or call 301-322-0886, or check the college website:

<http://www.pgcc.edu/current/academicresources/studentdevelopmentservices>.

How to Log in to Blackboard

Blackboard is a web-based program that serves as the college's online classroom. You may use Blackboard to communicate with your instructor, to see your course materials, to submit assignments and to discuss course ideas with your classmates.

To log in to your Blackboard course, you must have an Owl Link user ID and password and an Owl Mail account:

- Log in to **myPGCC** from my.pgcc.edu or from www.pgcc.edu. Click Online Students. Or, go directly to the Prince George's Community College Blackboard website which is located at **<http://pgconline.blackboard.com>**. **NOTE:** There is no "www" in the Blackboard address.
- If your login is successful, you will see the Blackboard "**Welcome**" screen. In the box labeled "**My Courses**", you will see the course or a list of courses in which you are enrolled. Click on the course name to enter your Blackboard course.

If you do not have an Owl Link User ID and password, you may obtain one by following these steps:

- Go to the Owl Link website (www.pgcc.edu → Click "Quicklinks" → Select "Owl Link")
- Look up your Owl Link User ID
 - Under Account Information, select "What's My User ID"
- Reset your Owl Link password
 - Under Account Information, select, "What's My Password"
- Check your email to receive your password.
- Log in to Owl Link and reset your password there.
- Once you have successfully logged into Owl Link and reset your password there, then go to Blackboard at <http://pgconline.blackboard.com> to log in. Type your Owl Link user ID and password into the Blackboard login box.
- If your login is successful, you will see the Blackboard "Welcome" screen. In the box labeled "My Courses", you will see the course or a list of courses in which you are enrolled. Click on the course name to enter your Blackboard course.

Need help with Blackboard?

- Need technical assistance? Visit the **eLearning website** (formerly Distance Learning) at **<http://www.pgconline.com>**
- Other questions? E-mail **distancelearn@pgcc.edu**

Tentative Schedule for MAT 1050 *Elements of Mathematics*
Tuesday/Thursday Schedule – Fall 2009
subject to change

Week	Dates	Topics
1	September 1, 3	Course Introduction; Sections 1.1, 1.2, 1.3, 1.4, and 1.5 Quantity and Problem Solving
2	September 8, 10	Sections 2.1, 2.2, and 2.3 Place Value and Bases other than Ten
3	September 15, 17	Sections 2.4, 2.5, 2.6, 3.1, 3.2, and 3.3 Operations in Different Bases; Thinking about Addition and Subtraction
4	September 22, 24	Sections 3.4, 3.5, 3.6, 3.7 and 3.8 Thinking about Multiplication and Division; Number Sense Exam 1 Material Ends
5	September 29, October 1	Sections 4.1, 4.2, 4.3, 5.1, and 5.2 Algorithms for Whole Numbers and Decimals; Mental Computation
6	October 6, 8	Sections 5.3, 5.4, 5.5, 5.6, and 6.1 Estimation and Scientific Notation; Meaning of Fractions
7	October 13, 15	Sections 6.2, 6.3, 6.4, 6.5, 6.6 Understanding Fractions, Decimals, and Percents
8	October 20, 22	Sections 7.1, 7.2, 7.3, 7.4, and 7.5 Computing with Fractions
9	October 27, 29 <i>No class on 10/27 – College Enrichment Day</i>	Sections 8.1, 8.2, 8.3, 8.4 Multiplicative Reasoning Exam 2 Material Ends
10	November 3, 5	Sections 9.1, 9.2, 9.3, 9.4, and 9.5 Ratios, Rates, Proportions, and Percents
11	November 10, 12	Sections 10.1, 10.2, 10.3, 10.4, 10.5, and 10.6 Working with Signed Numbers and Clock Arithmetic
12	November 17, 19	Sections 11.1 and 11.2 Factors and Multiples; Primes and Composites
13	November 24, 26 <i>No class on 11/26 – Thanksgiving Holiday Break</i>	Section 11.3 Divisibility Tests
14	December 1, 3	Sections 11.4, 11.5, 11.6, and 15.1 Greatest Common Factor & Least Common Multiple; Numerical Patterns & Functions Exam 3 Material Ends
15	December 8, 10	Sections 15.2, Review, and Catch-up More Uses of Functions and Algebra
16	December 15*, 17 <i>* No class on 12/15 – Final Exam Period</i>	Comprehensive Final Exam

**The Final Exam for this course is scheduled for
Thursday, December 17, from 5:00 – 7:30 p.m.**