I. COURSE INFORMATION:

Course Number and Title:  
MATH 2008 Foundations of Numbers and Operations (CRN 500)  

Term:  
Fall 2019

Building-Room:  
Instructional Complex # 220

Credit Hours:  
3

Days:  
Mondays & Wednesdays

Time:  
8:00 AM – 9:15 am

II. INSTRUCTOR INFORMATION:

Professor:  
Dr. Geoff Clement

Office Location:  
IC # 243 (= 35)

Office Hours:  
M-R 9:30-11:30 in IC 243, MW 12:30-1:30 in our Student Success Center, and other times by appointment (Just call or e-mail your professor.)

Phone:  
678-359-5820

e-mail:  
gelement@gordonstate.edu

III. TEXT (S) AND RESOURCES

Textbook:  
Chapters 1, 2, 3, 5, 6, 7, and 8. The text is optional since the MML packet includes the e-text.

Required:  
My Math Lab (Course ID: clement93453) (MML Customer Support: 1-800-677-6337)

NCTM Principles and Standards for School Mathematics  www.nctm.org
NCTM Curriculum Focal Points for Pre-Kindergarten through Grade 8 Mathematics www.nctm.org

This course will be enhanced with Desire2Learn (D2L) and other course resources on Dr. Clement’s professional website:  http://faculty.gordonstate.edu/gelement

Calculator: A scientific calculator is required. Some course work will be done without the calculator, while other course work will require a calculator. Students are not allowed to share calculators during quizzes and tests, and cell phone calculators are not allowed.

We are using a cohort model throughout our ECE program, so strong effort will be made to build community as we promote sound teaching and learning.

While prospective teachers should have mathematics content knowledge that reaches beyond elementary content standards, particular emphasis in this course will be placed on CCSSM standards:

Common Core State Mathematics Standards: Pre-K – Grade 5  
http://www.corestandards.org/

Syllabus MATH 2008 – Foundations of Numbers and Operations
Georgia Standards of Excellence

https://www.georgiastandards.org/Georgia-Standards/Pages/default.aspx

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IV. CATALOG DESCRIPTION: Pre-Requisites:

MATH 1001, MATH 1111, or MATH 1113

Description:
This course is an Area F introductory mathematics course for early childhood education majors. This course will emphasize the understanding and use of the major concepts of number and operations. As a general theme, strategies of problem solving will be used and discussed in the context of various topics.

VI. COURSE OUTLINE:

A. Mathematical Processes
   1. Mathematics as Communication
   2. Mathematics as Reasoning
   3. Mathematics as Problem Solving

B. History of Numeration
   1. Numeration Systems
   2. Place Value

C. Number Sense
   1. Sets of Numbers: Natural Numbers, Whole Numbers, Integers, Rational Numbers, Irrational Numbers, Real Numbers
   2. Even and Odd Integers
   3. Order Relationships
   4. Estimation

D. Concepts of Operations
   1. Operations on Sets of Numbers
   2. Identity Elements for Addition and Multiplication
   3. Inverse Operations
   4. Exploration of Other Bases
   5. Proportional Reasoning and Percents

E. Number Theory
   1. Divisibility Rules
   2. Greatest Common Factor
   3. Least Common Multiple
   4. Prime and Composite Numbers

VII. OBJECTIVES/GOALS/LEARNING OUTCOMES

(A) Specific Objectives:
All students will learn to:
   o Understand numbers, ways of representing numbers, relationships among numbers, and number systems.
   o Understand meanings of operations and how they relate to one another.
   o Compute fluently and make reasonable estimates.
   o Apply multiple problem solving strategies and understand how approaches to solutions relate to one another.

(B) General Education Outcomes: This course, by means of the lectures, activities, and course requirements, addresses the following Gordon College General Education Expected Outcomes:
1. Students will demonstrate competence in college-level reading and writing.
2. Students will demonstrate competence in oral communications.
3. Students will be aware of basic bibliographic research and resources.
4. Students will conduct routine information technology tasks through the use of a variety of computer applications.
5. Students will demonstrate a basic knowledge of the fundamentals of college-level mathematics.

(C) GORDON LEARNING OUTCOMES:

Unit Philosophy:

A Gordon teacher is one who possesses the abilities, skills, knowledge, and confidence to inspire and enable each student to become a lifelong learner. A more detailed explanation of the unit philosophy may be found at http://www.gordonstate.edu/education/teacher-education-philosophy.


There is a list of resources at http://www.gordonstate.edu/education/information-for-current-students.

The Math 3001-3002-3003 courses are primarily mathematics content courses, but they should impact prospective teachers’ knowledge of curriculum, students, learning environments, planning, and instructions, as well as professionalism and assessment. Elementary teachers must be aware of and proficient with Grades preK-8 mathematics.

Provided within the Common Core, the eight Standards for Mathematical Practice are:

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.

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V. CONCEPTUAL FRAMEWORK:

A Gordon teacher is one who possesses the abilities, skills, knowledge, and confidence to inspire and enable each student to become a lifelong learner.

The entire toolkit of the Early Childhood Education Program is described by ten conceptual framework outcomes, organized within five categories of the Georgia Framework for Teaching. Each outcome contains four indicators, with the fourth indicator relating to dispositions. In summary, there are thirty indicators related to the knowledge and skills essential to teaching for learning, and ten indicators of dispositions inherent within great teachers. On the chart below, the ECE program outcomes and indicators are summarized and linked to sources of evidence that will be evaluated in this course.
**Alignment of Framework, Outcomes, and Related Indicators:**

<table>
<thead>
<tr>
<th>Conceptual Framework Outcomes</th>
<th>Indicators</th>
<th>MATH 2008 Foundations of Numbers and Operations Sources of Evidence</th>
</tr>
</thead>
</table>
| CF1. The candidate demonstrates an accurate understanding of elementary curriculum within the contexts of central concepts, tools of inquiry, structures and engagement of learners. | A. Subject Matter  
B. Integration of Subject Content  
C. Diversity  
D. Dispositions | **CC** | **DO** | **CWS** | **JE** |
| CF2. The candidate demonstrates knowledge of educational foundations within the contexts of law, philosophy, psychology, sociology, and technology. | A. Child Growth & Development  
B. Learning Connections  
C. Critical Thinking  
D. Dispositions | | | | |
| CF3. The candidate demonstrates knowledge of learning theory within the contexts of child development, family and parent dynamics, human exceptionalities and diversity. | A. Planning  
B. Response to Diversity  
C. Appropriate Curriculum  
D. Dispositions | | | X | |
| CF4. The candidate is an advocate for the success of all children in their care and provides nurturing guidance appropriate to their development. | A. Respect  
B. Advocacy  
C. Compassion & Understanding  
D. Dispositions | | | | |
| CF5. The candidate demonstrates simplicity in articulation of the curriculum based upon understanding the complexity of learner needs and the systemic nature of assessment, planning, and accommodations in teaching strategies. | A. Learning Design  
B. Management  
C. Climate  
D. Dispositions | X | X | X | |
| CF6. The candidate demonstrates an effective utilization of technology and curricular resources in the implementation of learning plans. | A. Learning Strategies  
B. Media  
C. Technology  
D. Dispositions | X | X | X | X |
| CF7. The candidate models expectations held for students in his/her communication, demeanor, commitment to personal growth, and sense of empathy. | A. Communication  
B. Exemplary Behaviors  
C. Empathy  
D. Dispositions | X | X | X | |
| CF8. The candidate collaborates with parents, other educators, and members of the community to improve the learning process for all students. | A. Collegiality  
B. Parent Communication  
C. Sensitivity  
D. Dispositions | | | | |
| CF9. The candidate utilizes analysis of the individual student’s assessment to make adjustments in teaching to improve performance. | A. Analysis of Impact  
B. Reflective Planning  
C. Professional Growth  
D. Dispositions | | | | |
| CF10. The candidate encourages students to take responsibility for their learning and provides multiple opportunities for them to develop proficiency. | A. Formative Assessment  
B. Data Management  
C. Assessment for Learning  
D. Dispositions | | | | |

*Evidence Abbreviations: CC =Course Content; DO = Directly Observed; CWS = Candidate Work Sample; JE = Journal Entry*
VIII. INSTRUCTIONAL METHODS:
Problem-centered teaching, Cooperative Learning, Independent Learning, Direct Instruction

IX. ATTENDANCE:
Class attendance is required. Each student is responsible for signing the Attendance Sheet during each class period. Students are responsible for all instruction, every change in the syllabus, and all material covered in class whether or not they are present. Students who enroll in the course late are responsible for material covered before they enrolled.

Withdrawals from Class
For full-term courses, a student may withdraw from a course up to the midpoint of the semester and receive the grade of “W” without penalty. A student who simply abandons their classes will be given an “F” at the end of the semester. To withdraw from a course, a student may visit the Registrar’s office in Lamdin Hall and process the form through the Registrar’s office.

X. ASSESSMENT
A student’s grade in the course will be determined by individual test scores, projects, and daily assignments. Each student will keep a portfolio with assigned problems, projects, and journal entries (together worth 100 points). There is a test on each of our 4 units (worth 100 points each), and there will be a comprehensive final exam (worth 100 points). The average of several announced and unannounced quizzes will be worth 100 points. My Math Lab homework will count for 100 points. The student’s final grade will then be computed out of a total of 700 points. The final exam may also be substituted for the lowest unit exam. Your course grade will then be decided according to the following scale (after rounding):

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>90 - 100 %</td>
<td>A</td>
</tr>
<tr>
<td>80 - 89 %</td>
<td>B</td>
</tr>
<tr>
<td>70 - 79 %</td>
<td>C</td>
</tr>
<tr>
<td>60 - 69 %</td>
<td>D</td>
</tr>
<tr>
<td>Below 59 %</td>
<td>F</td>
</tr>
</tbody>
</table>

A. There will be four in-class tests given during the semester and a final examination. All tests and the final examination are required. The dates for the in-class tests are announced at the end of the course syllabus and the final examination is announced by the College. If you miss a test, you may receive a grade of “zero” for that test unless you have a documented excuse. Make-up tests are given at the instructor’s convenience. If your final exam grade is higher than your lowest test grade, then the final exam grade will replace your lowest test grade.

B. All quizzes, homework assignments, projects, and journal assignments are required. There are no make-up quizzes and no make-up homework assignments. The lowest portfolio grade will be dropped.

C. All daily assignments are due during class time with a 20% penalty for assignments coming in late on the same day and a 0 for all missed deadlines.

D. Writing assignments should be research-based, using best practices for teaching mathematics, not based solely on your opinions. Document your sources. Your paper should be of college-level quality showing competency in spelling, grammar, punctuation, and style.

XI. RESOURCES:
Read your book. Ask your instructor for help in class and outside of class. We will schedule extra help sessions when the need arises. There is free tutorial help available from the Student Success Center.
On Gordon’s web page, you will find many resources. To find these, go to www.gordonstate.edu; Degree programs; Teacher education; Bachelor of Science in Early Childhood Education; Information for current students. The course syllabi and course resources are in Desire2Learn and also on your instructor’s website at http://faculty.gordonstate.edu/gclement/. Besides office hours, the SSC (Student Center 2nd floor) is available for tutoring assistance. Consider creating a study group with fellow classmates.

If you need academic accommodations for a disability, you must go through the process of receiving approved accommodations through the Student Counseling office in the Student Center (2nd floor). Their telephone number is 678-359-5585. Any student who is certified as disabled and who thus qualifies for special accommodations must provide the instructor with appropriate evidence of such certification. Reasonable accommodations will be made to students who have proper documentation and inform the instructor at the beginning of the course.

XII. ACADEMIC INTEGRITY:
Each student must do his or her own work on tests and the final examination without assistance from any outside source not specifically authorized by your instructor.
   Ref.: Student Code of Conduct – Academic Catalog.
   Ref.: Georgia Code of Ethics for Educators

Classroom Etiquette: Students are expected to treat the instructor and other students with respect. Please refrain from the following during class time:
1. Talking with other students
2. Leaving class early (other than an emergency)
3. Leaving the desk to sharpen a pencil in the middle of a lecture.
4. Consistently late coming to class
5. Pagers beeping during class
6. Placing or receiving cellular phone calls or text messaging during class.

All electronic devices (radios, telephones, pagers, etc.) must be turned off upon entering the class.

XIII. OFFICE PROCEDURES.
To get help from me:

1. Bring your textbook, your calculator, and your class notes.
2. Make sure you have read the lesson notes and studied the examples.
3. Be prepared to show at least two problems from the section that you have attempted to solve.
4. Bring your incomplete or complete solution to each problem.
5. Ask for help as early as possible. Don’t wait until test days to get your questions answered.

NOTE: This syllabus MAY be changed at the discretion of the instructor with the knowledge of the class.
Keys to Success in this class:

1. Have a goal for this class. Make this class a priority. You can succeed in this class!

2. Be on time every day. Don’t miss class; when you must, communicate to your instructors.

3. Review class notes just before and just after class.

4. Read the text. Study the examples. Keep up with the pace of the class.

5. Practice, practice, and then practice some more. Do homework as soon as possible after class.

6. Ask questions. You have the right; asking questions shows you care and will often help others.

7. Read the directions carefully. On tests, start by “unloading” important formulas and concepts.

8. Actively listen in class. Take good notes.

9. Use our tutoring center whenever you need help. Don’t let things snowball.

10. Correct any mistakes you make on quizzes and tests.

11. The final exam is comprehensive. Prepare for it throughout the semester.

Math 2008 Tentative SCHEDULE: FALL 2019

MATH 2008-A  Foundations of Number and Operations (CRN 500)  MW 8:00-9:15 am  IC #220
My Math Lab Course ID: clement93453

<table>
<thead>
<tr>
<th>DATE</th>
<th>TEXTBOOK SECTION</th>
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<tbody>
<tr>
<td>8/19</td>
<td>Introductions, 1–1</td>
</tr>
<tr>
<td>8/24</td>
<td>1–1, 1–2</td>
</tr>
<tr>
<td>8/26</td>
<td>2–1</td>
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<tr>
<td>8/31</td>
<td>2–2</td>
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<tr>
<td>9/4</td>
<td>2–3</td>
</tr>
<tr>
<td>9/9</td>
<td>Review</td>
</tr>
<tr>
<td>9/11</td>
<td>TEST 1, MML Homework &amp; Journal I Due</td>
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<tr>
<td>9/16</td>
<td>3–1, 3–2</td>
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<tr>
<td>9/18</td>
<td>3–2, 3–3</td>
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<td>9/23</td>
<td>3–4</td>
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<td>9/25</td>
<td>3–5</td>
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<tr>
<td>9/30</td>
<td>Review</td>
</tr>
<tr>
<td>10/2</td>
<td>TEST 2, MML Homework &amp; Journal II Due</td>
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<tr>
<td>10/7</td>
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<td>10/9</td>
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<td>10/16</td>
<td>6–1, 6–2</td>
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<td>10/21</td>
<td>6–3, 6–4</td>
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<tr>
<td>10/23</td>
<td>Review</td>
</tr>
<tr>
<td>10/28</td>
<td>TEST 3, MML Homework &amp; Journal III Due</td>
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<tr>
<td>11/4</td>
<td>7–1</td>
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<td>11/6</td>
<td>7–2</td>
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<td>11/11</td>
<td>7–3</td>
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<tr>
<td>11/13</td>
<td>7–4</td>
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<tr>
<td>11/18</td>
<td>Review</td>
</tr>
<tr>
<td>11/20</td>
<td>TEST 4, MML Homework &amp; Journal IV Due</td>
</tr>
<tr>
<td>12/2</td>
<td>Cognitively Guided Instruction (CGI) Introduction</td>
</tr>
<tr>
<td>12/4</td>
<td>CGI Intro, Review</td>
</tr>
<tr>
<td>12/9</td>
<td>Review</td>
</tr>
<tr>
<td>12/11</td>
<td>FINAL EXAMINATION (Wednesday, 8:00 - 10:00 am, IC #220)</td>
</tr>
</tbody>
</table>


Instructor:  Dr. Geoff Clement  Office:  Instructional Complex, Room 243
Phone:  678-359-5820
Office Hours:  M-R 9:30-11:30 in IC 243, MW 12:30-1:30 in our Student Success Center, and other times by appointment (Just call or e-mail your professor.)
Other Tutoring:  Student Success Center (Student Center, 2nd floor, above Bookstore), STEM Center (IC Room 319)
E-mail:  gclement@gordonstate.edu  Website:  http://faculty.gordonstate.edu/gelement

Do your best! Rise to the challenge! Live and learn!